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By 1830 the sailing packet had attained a more than reasonable pitch of perfection, and the steamer was already a possibility. Devoting a chapter to each decade of the last one hundred years, Mr. Bowen has written a fascinating history in which he discourses on such subjects as the beginning of immigration; "bucko mates" and "packet rats"; the coming of the Cunard Line; the enmity of the sailing-ship men; the clipper packets and their records; American competition; the influence of the Civil War; the disappearance of wood and the triumph of the screw; the beginning of luxury travel; the White Star and its effects; the struggle for the Blue Riband; Germany's great bid for speed; the Morgan combine; the Great War, the blockade and the transport problem; Post-War problems; the tourist boom; the coming of the Diesel engine; and the development of the future.

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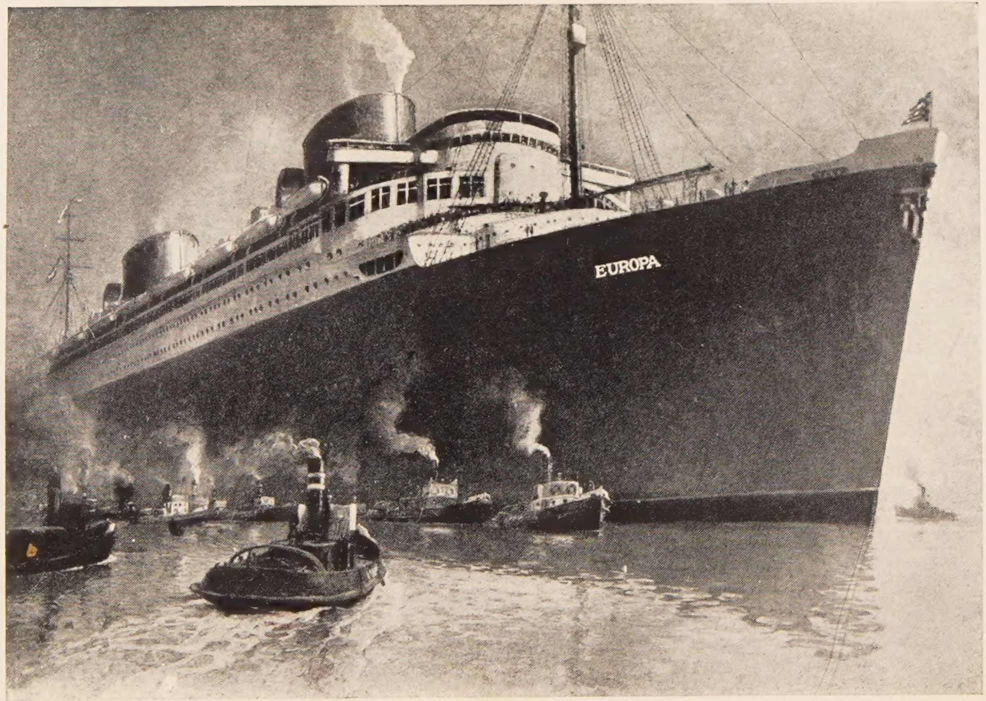

*Europa,* Sister Ship to the Record Breaker, *Bremen*

# *A Century of*
# *A*TLANTIC *T*RAVEL
## *1830 - 1930*

BY

FRANK C. BOWEN

*With Illustrations*

BOSTON
LITTLE, BROWN, AND COMPANY
1930

STACK

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To my Friends
Who Help to Run the Ships of the Atlantic Ferry
and
To the Memory of my Friend
MR. FRANK BRADLEE
Of Marblehead
Whose Generosity in Sharing his Vast Knowledge
of the Old Timers Will Always Be Gratefully Remembered
by
The Author

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# *A Century of*
# ATLANTIC TRAVEL
# 1830 · 1930

## *Introduction: Before the Thirties*

Although the year 1830 is the most convenient and appropriate date to commence the survey of a Century of Atlantic Travel, for by then the sailing packet had attained a more than reasonable pitch of perfection and the steamer was already a possibility, the year 1816 is forever memorable in the history of the Western Ocean, for that was the date of the commencement of the first regular sailing-packet line as a private enterprise.

Before that the private ships on the Western Ocean had only been odd ones, put on the run for the convenience of the moment. The only regular service had been that of the State, run by the British Post-office packet brigs for the convenience of the mails and the Colonial administration, and carrying only a few passengers in anything but comfort. After the fashion of the naval brigs of that day they were terribly overmasted, so that although they were capable of making fast passages they capsized so frequently that they came to be known as "coffin" brigs. They were part of the armed forces of the Crown, but in order that the prospects of prize money might not tempt them away from the business of carrying His Majesty's mails, they were so weakly armed that the most dashing of captains would think twice about tackling an enemy with them. The result was that they were constantly being taken by French and American ships which could sail as fast as they could and which were infinitely better armed, and the mails fell into enemy hands.

This Post-office packet service commenced its regular schedule to New York at the end of 1710, the packet brig *Royal Anne* inaugurating it. Under Captain Shorter she made the passage from Bristol to New York in fifty days and the eastward run in twenty-eight.

In those days the Post-office was farming out its packet service, and although their arrangements were better and more regular than anything that had existed before them, they were far from satisfactory. The departures were very erratic, the wind and weather clause covering everything, and complaints were constant.

In 1756, the British Government by that time managing their own packet service, the terminal was moved from Bristol to Falmouth, where the other services had their base. This meant a slight improvement, but the service was very far from ideal. When the United States became independent Halifax was made the mail terminal on the other side, but by that time there were a few independent ships beginning to run more regularly on the transatlantic service and the Government packets had to share the passenger trade with them. Many of the independent ships were American-owned and run, Boston being their chief center. It was about this time, at the end of the eighteenth century, that Liverpool began to take its share of the trade in competition with London, to which port most of the independent ships had plied to begin with.

The French came into the business in 1783, when they were particularly anxious to improve their relations with America. It was a curious arrangement under which the service was run from New York to Lorient, for the real owners were Paris bankers but they used French naval ships manned by naval officers and ratings. The French Government subsidized the service and although it came in for its full share of complaints of mismanagement and irregularity, it has to be admitted that it had by far the best tonnage then on the Atlantic, although three hundred tons was about their maximum size. *Marechal de Castries* — a Boston-built ship — *Courrier de l'Europe* and *Courrier de l'Amerique* were the best known ships of that day and owing to the subsidy they were in a position to carry mails at a very reasonable price, more reasonable indeed than they were carried in the middle of the nineteenth century.

These government ships were the only really noteworthy vessels on the Atlantic, the rest being of a very miscellaneous nature. It must be remembered that the Atlantic trade never had the advantage of a chartered company of the wealth and magnitude of the East India Company, to evolve its own special type of ship and to be willing to pay for the best. It is very doubtful whether the American temperament would ever have put up with such an organization, with its necessary privileges and monopolies, but in the eighteenth century it was the only means of maintaining big ships and a regular schedule.

Before 1776 a large proportion of the settlers in America went unwillingly. Some of them were guilty of criminal offences of various degrees of seriousness, others were transported merely because they had incurred the enmity of somebody in power or because they were loyal to their old king. It is an undoubted fact that in their new home the majority of these transportees made excellent citizens, but for their voyage out anything would do and the authorities cared little whether the ships which were carrying them sank or swam.

For many years after the Declaration of Independence had put a final stop to this traffic, either Britain or the United States or both were spending most of their time engaged in some war or other which effectively prevented any considerable development in the trade between the two. But the Americans were steadily improving themselves, both in ship design and ship construction, and although progress was slow it was perfectly steady.

One real effort at improvement was made in 1805 when the Boston Importing Company started to operate ships between Boston, Liverpool and London. The first sailing was by the *Sally,* three hundred twenty-three tons, which was followed by the *Packet* and the *Romeo.* This service promised well, giving quite reasonable accommodation for its passengers, but it was one of the numerous American companies which suffered from the Napoleonic Wars, and when the *Sally* was seized by Napoleon in San Sebastian and the *Packet* at Hamburg, the company got into financial difficulties and had to close down.

It is certain that very much greater and more rapid progress would have been made had it not been that the European authorities and various societies were all against transatlantic travel, particularly during the Napoleonic Wars. In 1810 one of the accountant officers of H.M.S. *Curaçoa* was court-martialled and sentenced to two years' imprisonment in the Marshalsea for enticing two midshipmen of the ship to resign from the service and emigrate to America. In the same year the Highland Society of

Scotland, issuing a widely read pamphlet headed "The Dreadful Attempt of the Captain to Emigrate to America," went back so many years that its real character was unmistakable, but the information that it gave was most interesting.

It quoted the case of an emigrant ship which sailed to North Carolina in 1773, a ship of three hundred tons burden. About four hundred and fifty souls sailed in this ship, of whom twenty-five came on board without any provision of food or bed and who only managed to get resting place during the voyage through vacancies caused by death. The passage lasted twelve weeks, three days, and before very long water had become scarce. The thirst of the passengers was, of course, made worse by being fed entirely on salt meat, and for the last fortnight of the voyage the allowance was only one pint of water every twenty-four hours. That would have been bad enough with good water, but unfortunately most of the casks were made of staves which had already been used in barrels for tobacco or indigo, with the result that sickness was rife and twenty-three of the passengers died on the voyage. The wonder is that the number was not greater.

Another case mentioned in the pamphlet was that of a ship which took emigrants from the Isle of Skye to Carolina in 1791. She was even smaller than the one already mentioned, two hundred seventy tons burden, but she crowded on board four hundred passengers, including many women and children. The passengers' accommodation was arranged with three tiers of berths fore and aft, and two athwartship. Each adult passenger was allowed eighteen inches of width, but between the upper and lower bunks there was a space of only two feet, including bedding, so that the ventilation was naturally appalling.

This was bad enough, but far worse was the fact that the ship was not only under-victualled but was almost unprovided with the proper cooking utensils. There were only two large pots on board, each holding twenty-four pints, so that the business of cooking the food of such a large company naturally took practically the whole day. Even had it been possible to keep the ship clean, which was doubtful in her crowded state, it was not considered to be the business of anybody on board to attempt it, so that what would have happened had she completed her voyage may well be imagined. Fortunately, twelve days out she was dismasted and had to put back into Greenock with several of her passengers already dead and several more ill beyond hope of recovery. These unfortunate emigrants had already sold up all their possessions in Skye, and would have been in a very serious position had it not been for the kindness of a rich Glasgow cotton manufacturer who made special arrangements to employ them in his mills.

Numerous other instances were mentioned, chapter and verse being given, and unfortunately the conditions showed but little improvement between the first case and the publication of the report in 1810.

But the restoration of world peace in 1815 made all the difference, and it gave to American business men an opportunity of putting both their enterprise and technical skill to good use. So in 1816 they started operations, the first packet company founded to run a regular service across the Atlantic being the Black Ball Line, which must not be confused with James Baines' service of the same name to Australia many years afterwards, with which it had no connection. The partners in the business were Isaac Wright, Francis and Jeremiah Thompson, Benjamin Marshall and many others, and they started their service between New York and Liverpool with the four ships *Amity, Courier, Pacific* and *James Monroe.*

These were not clippers, by any means, but were just well-built, rather stocky little ships of about five hundred tons each. It is true that their lines were rather better than the contemporary British ships of their size, but after that there is little enough to say of them from the naval architect's point of view. Yet, with masters who had most of them learned to handle sail in the dashing and very successful American privateers, they were driven hard and made quite good passages, better than anything that had been considered possible before their day.

All the early Black Ballers were approximately of the same type, flush-decked, fully rigged ships painted black, with a bluff bow and rather elaborate quarter galleries, man-of-war fashion. Every available inch of space on board was used by the emigrants, who occupied the whole of the 'tween decks amidships, from the forecastle which accommodated the crew, to the cabin in which a few first-class passengers traveled in comfort, and who were literally packed like sardines. Elementary decency was forgotten; men and women were herded together in the most appalling circumstances. Their fare provided for transport and water only, and they were expected to bring on board their own food for the journey and cook it themselves at the galley which stood on deck between the fore and main masts. The weaker went to the wall in getting the opportunity for cooking their food, while anybody who had miscalculated the length of the journey, or had embarked with little knowledge of what to take, stood a fair chance of starving before New York was reached, but for the charity of his fellow travelers. But these ships were better than anything that had preceded them and they were a means of escape from war-shattered Britain, so that there was no lack of applicants for their accommodation, and the emigrants, who were mostly of the pioneer type, usually contrived to make themselves as comfortable as circumstances permitted.

The cabin passengers on the other hand had remarkably comfortable quarters for ships of such moderate size. In the *Pacific,* one of the pioneer Black Ballers, the dining saloon or cuddy was forty feet long by fourteen feet wide, with a long table down the center and upholstered seats of the same length on either side. Seven staterooms led off either side of this saloon, having panelled doors and affording a complete privacy that was rare on shipboard.

It was solely for the benefit of the cabin passengers, although a kindly captain would generally do what he could for the emigrants, that these ships took to sea a veritable farmyard. The long boat was housed over and securely lashed down to the deck in such a way that the ships' officers must have prayed that it would never have to be used. Inside it were the sheep and pigs, while the poultry had their coops on top. Over the main hatch was lashed the cow house, containing one or two cows in milk, while some enterprising captains even tried to run a small kitchen garden to provide fresh vegetables.

Although only the pioneer New York packets are generally mentioned, it should be recorded that Salem, always enterprising where ships and shipping were concerned, entered the transatlantic trade in the same year with the idea of building up a fleet. Captain John White, backed by local financial interests, ordered the 341-

ton ship *Palladium* to start a regular service between Salem and Liverpool. Unfortunately the project was short-lived, for some of the financial backers had their own interests to look after and she was put on the Calcutta trade until she was sold out of the town shortly afterwards.

The first four Black Ball ships were so popular that within six months the *William Thompson, James Trotter, New York* and *Orbit* were added to the fleet, some being built and some purchased, and were soon followed by the *Nestor, Albion, Canada* and *Columbia,* enabling the firm to despatch a ship twice a month with remarkable regularity.

The sailing days were the first and sixteenth of each month, when it was a great event of New York life to go down to the dock and watch the departure of the little ships flying the red swallow-tail flag with its black ball and having a black ball painted on their topsails after the fashion of the Armada galleons. And they were worth watching too, for in spite of their small size and heavy construction they could travel under the hands of American captains. The *Canada's* record eastward passage was fifteen days, eighteen hours, and her average was extraordinarily good for such a ship. But forty days for the westward run was not abnormal, on which occasion the plight of the emigrants who had to feed themselves may be imagined.

But the first signs of the coming revolution were at hand, although few cared to read them and most shipping men only scoffed at the little *Savannah* crossing the Atlantic with steam engines. To describe her passage in 1819 as the first Atlantic steam passage is not fair, for her paddles were specially fitted so that they could be unshipped and stowed on deck when opportunity offered and full advantage was taken of the facility. On her first passage, in fact, her engines were running for only eighty hours out of the twenty-nine days, eleven hours, that she took to travel from Savannah to Liverpool and even then she arrived off Cork without sufficient coal to raise steam. On the homeward journey she did not use her engines until she was actually inside the Savannah River.

As an Atlantic steamboat she was farcical; indeed her engines were taken out of her in 1820, but she was the indication which only a few wise men read.

In the meantime Atlantic travelers were quite contented with the sailing packets and the service that they provided. The Americans were naturally proud of leading the world in the type of ship which was attracting most attention, and they had every reason for their pride. There were enough prime seamen from the New England States to supply crews for all the ships that could be put into service, and it was not until later that the "packet rat" came into existence. Trade between the two English-speaking nations was booming, mails could be carried at a reasonably profitable rate, the westward passenger movement was all that could be desired and the virgin forests of the Eastern States provided all the prime ship timber that the yards could consume.

Then, as now, the service to Canada was always at least a step or two behind that to the United States. If the old-time conditions to New York were bad, those to the St. Lawrence were infinitely worse. In the early days of British colonization not the least effort was made to maintain a regular service, except for the packet run to Halifax, the settlers finding their way out as best they might when ships were sailing — ships which were usually going out purely for the purpose of bringing back timber and naval stores. It was not until 1819 that a regular passenger and cargo service was formed, and then it was due to the enterprise of Captain Alexander Allan, a Glasgow shipmaster who gave his name to the famous line of steamers. His ship, the *Jean,* was a small brigantine of 169 tons, launched in that year, and her dimensions 76 feet 8 inches, by 22 feet 6 inches, by 13 feet 4 inches of hold did not promise very much room for the passengers.

In those days all British ships were owned in sixty-fourth shares — technically they still are — and Allan, although he commanded and managed the ship, only had eight. Another shipmaster had a similar holding, although he took no part in the management, the remainder of the shares being in the hands of Scottish business men.

Captain Allan at that time was a man of thirty-nine, who had already amassed considerable experience at sea, notably in command of the store-ship *Hero* during the Napoleonic Wars. He realized that a regular service was as necessary for Canada as it was for the United States, so at the first opportunity he secured the coöperation of two other owners and with the three ships he started running to schedule in 1822, each ship making two round trips during the open season, three if they were favored with luck.

The Black Ball Line started its operations from New York, but that port could not maintain any sort of monopoly. It is true that in 1821 the Red Star Line to Liverpool chose it as its terminal, a company that was owned by Byrnes, Gimble and Company, and which started operations with the *Panther, Meteor, Hercules,* and *Manhattan,* maintaining a monthly schedule; but in the same year Thomas Cope of Philadelphia started his service from that city to the Mersey. The two ships with which he started were the *Lancaster* of 290 tons and the *Tuscarora* of 379 tons, but they were soon followed by bigger ones.

Then in 1822 came Messrs. Fish, Grinnell and Company, who soon became known as the Swallow Tail Line. Their first fleet consisted of the *Napoleon, Silas Richards, George* and *York,* but they had not been running more than a twelvemonth before they started a London service in addition and began to build bigger and better tonnage. When their Liverpool ships selected the eighth of each month as their sailing day they completed a regular weekly service with the Black Ball and Red Star packets.

The Continent was also covered, the first regular line starting in 1822 when Francis Depew founded his line of Havre packets from New York. *Stephania, Henri IV, Helen Mar* and others were among his ships.

As a variation of the direct packet, the Boston and Liverpool Packet Company was started in 1822 to run between Boston and Liverpool by way of Charleston, South Carolina, where they finished their loading with cotton. This would appear to be a rather roundabout route, but the Western emigrant traffic was too valuable to be wasted and they went straight back to Boston. When the line was started its promotors tried to get a charter from the State of Massachusetts, and when this project failed they went in for a most elaborate scheme in order to get the cream of the British business, the only result being that they were ruined within a few years. But while they lasted, their little gems — *Amethyst, Emerald, Sapphire* and *Topaz* — of under four hundred tons apiece were noteworthy ships which afterwards did very well and made big profits in the Calcutta trade.

Spofforth and Tillotson ran from New York to Liverpool. Grinnell, Minturn and Company were doing well with their new London service even against the competition of John Griswald's London Line whose ships — *Sovereign, President, Cambria* and others — carried a red swallowtail flag with a black X, and there were soon many other owners who ran one or two ships to or from practically every port on the American seaboard. The smaller companies made good profits while the opportunity favored them, but the opening of the Erie Canal in 1825 made a huge difference to the Atlantic service and began to focus a greater proportion of it on New York. At that port the bigger companies had a very strong position so that the smaller concerns were gradually forced out of existence or decided that it was wiser to abandon the passenger business and to content themselves with the very satisfactory freights that were to be picked up for the asking.

There was also increased competition on the Canadian route, where Captain Allan was only able to keep his monopoly until 1825. In that year a syndicate of Aberdeen business men, headed by George Thompson, put several vessels on to the Canadian service and ran to similar schedule, as regularly as the circumstances permitted. After several years Thompson withdrew his service and devoted himself to the Australian trade, on which his company, under the title of the Aberdeen Line, made themselves famous in the ownership of some of the best-known clipper ships that ever sailed, *Thermopylae* and the like.

In 1827 a little steamer started crossing the Atlantic which deserved much more attention from the sailing-ship men than the *Savannah,* but not being on the direct New York run she almost escaped notice in her own day and is very seldom mentioned by shipping historians.

She was the Dutch steamer *Curaçao,* which for some years maintained a regular steam service across the Atlantic to the Dutch West Indies. She was built in Dover, 1825, and it was then intended to call her *Calpe.* A vessel with dimensions 130 by 27, which gave her a burden of 240 tons, she was owned by the American and Colonial Steam Navigation Company, who had a somewhat vague idea of starting a direct Atlantic service but who were glad enough to sell her to the Dutch Navy in 1826 before she had time to make a single voyage under their flag.

The Dutch used her for the purpose of a mail service to the West Indies, and she left Hellevootsluis on April 26, 1827. Her passage to Surinam took twenty-eight days, but only twelve of these were spent under steam, for her engineers were anxious for her coal supply and had not yet learned what her consumption really was. At Surinam, however, it was found that she had plenty in hand and she steamed the remaining five days to Curaçao. On her homeward passage she used her engines very much more, twenty-one days out of the twenty-nine at sea, so that she has every claim to be considered as a real steamer, the more especially as in her latter voyages her canvas came to be regarded more and more as an auxiliary, as it continued to be in steamers until a comparatively recent date. When the Dutch Navy was involved in the Belgian troubles of 1830 she was taken off the mail service to act as a man-of-war and never returned to it.

There are two more lines of sailing packets which deserve mention before this brief survey of the pre-1830 situation is concluded. One was the second service between Boston and Liverpool, which was started by Messrs. Hall, Blake and Henshaw in 1827. They went to Thatcher Magoun of Medford for their tonnage, which at that time was considerably in advance of its competitors.

The *New England, Lowell, Trenton, Plymouth, Dover, Boston* and *Liverpool* were all practically sister ships of between four and five hundred tons, and they really made their passengers surprisingly comfortable considering the circumstances of the time. Their first-class accommodation, for instance, included both library and bathroom and this comfort at a fare of a hundred and forty dollars from Boston to Liverpool secured for them a full measure of popular favor.

The other was started in the same year and ran from New York to Havre in opposition to Depew's Company. At the commencement of the third decade of the nineteenth century, therefore, the sailing packets were well established on the North Atlantic and the business was organized to a very fine pitch.

# *Chapter I: The Thirties*

The fourth decade of the century opened with the sailing transatlantic packet in full power. It had been developed very considerably since it first appeared as a type some fifteen years previously, but it was still capable of infinite improvement. Steamers had already crossed the Western Ocean but they had not been taken very seriously by the average shipping man. They were still confronted with very obvious technical difficulties, and to an appreciation of these had to be added the contempt felt by the sailing-ship seaman or owner what he described as "tin kettles." Also, the Atlantic emigrant trade appeared to be inexhaustible and it is not surprising that the owners of the sailing packets felt that their position was secure.

Although still far from ideal, both ships and conditions were improving steadily, very largely as a result of the healthy competition that always tends to benefit the shipping industry. This competition was not only between the various lines, although it was keen enough there, but between various routes and countries, for at that time the transatlantic service was expanding steadily all over Western Europe.

The sailing packet has never had an adequate historian, but advertisements and notices appearing in the Press and elsewhere give a good many scraps of information and side-lights on the conditions which .obtained in those days. They show very clearly that the owners of the packets were not so keen on cargo as they were on passengers.

The Philadelphia packets sailed from Liverpool on the eighth of each month, closing for cargo on the seventh. The fleet then consisted of the *Montezuma, Monongahela, Algonquin* and *Alexander,* names as inspiring as could possibly be desired, although the ships only varied from 403 to 462 tons burden. With these ships it is rather curious to note that very few details of their accommodation were given in the Press advertisements, rather unusual at that time, and suggesting that it was not all that could be desired, but their owners fully understood the psychological advantage of the choice of names and made the very most of them.

The New York liners also sailed on the eighth of each month, the *Birmingham,* of 550 tons, *Sylvanus Jenkins* of 520, *William Byrnes* and *John Jary* of 500, and the *Herald* of 400. In these advertisements the names of the captains were always mentioned, then and very much later, and it is certainly true that the masters of these sailing packets were very much better known to the general public than the captains of the transatlantic liners to-day, with all the efforts of their publicity departments, honors lists and broadcasting.

Among the other ships sailing tolerably regularly from Liverpool were the *Philip Tobb* and *Belvedera* of 400 tons apiece for Baltimore, the 480-ton *Mary Catherinc* for Charleston, the 450-ton *Tally Ho* for City Point, Virginia, and the *Sarah Parker* of 400 tons for New Orleans. These are names chosen at random and there were many others too numerous to be given separately.

The smaller tonnage had its own chance, as witness the 260-ton American brig *Clarissa Ann* whose attractions for passengers bound to Charleston were certainly not hidden. Alongside her was the "Very Elegant American Ship" *North Star* of 400 tons for Philadelphia and the 472-ton *Tallahassee* for New Orleans, whose great advertising attraction — in Europe — was that she was British built. The big *Essex* relied on her size of 556 tons as a bait to capture passengers. Mention is also made of the chance of booking to Boston in the 300-ton *Coriolanus,* which was advertised as being "Now On First Voyage." Apparently the chance of sailing in a liner on her maiden voyage was as attractive then as it is now.

The business was attracting new companies and in February, 1830, the announcement was made:

"Liverpool and Boston Packets.

"The public are informed that a line of packets is being established between this port and Boston, a ship to sail from this port on the 20th and from the Boston on the 1st of each month.

"No pains nor expense have been spared to make these ships equal to any other built for strength, swiftness and accommodations and they will be commanded by experienced and skilful navigators. They will be furnished with mattresses, bedding, wines and other stores of the best qualities and nothing will be wanting to render them deserving of patronage.

"*Liverpool,* Captain Howes, to sail 20th March.
"*Amethyst,* Captain Nye, to sail 20th April.
"*Dover,* Captain Ira Bursley, to sail 20th May.
"*Boston,* Captain Mackay, to sail 20th June."

But this new competition still had to reckon with the original Black Ball Line, the "Old Line of Packets," as it was then generally called. They advertised their sailings on the first and sixteenth of every month, their fleet in the spring of 1830 being *Britannia, New York, Manchester, Caledonia, Canada, Florida* and *Pacific,* with an unnamed new ship which was then under construction. The advertisement goes on: "All recently built in the City of New York . . . the width of these ships gives each state-room ample space, even for luggage. The cabins are fitted up with great elegance and the fare is invariably 35 guineas for each adult which includes wine and everything necessary on the voyage." It would appear that at this period the Black Ball Line had the cream of the saloon business for which it advertised specially.

One cannot help noticing that very little notice was taken of the packets in the news columns of the papers in that day, fast passages not having yet obtained any general interest. This was the fact even in the seaports and one would almost think that Liverpool was ashamed of the shipping which was then making her great. The references which did appear were mostly concerning the troubles of the packets, as for instance in June, 1830, when it was announced that the British ship *Brunswick,* Captain Blake, had arrived at New York from London with two hundred passengers, of whom one hundred twelve were down with smallpox, five having already died during the voyage.

By the close of the year the Philadelphia packets had been reinforced, a second sailing being arranged on the twentieth of each month. The new ships were the *Arab,* 335 tons, *Julius Caesar,* 346, *Ann,* 300, *Delaware,* 400, and *John Wells* of 380 tons, an unfortunate lowering of the picturesque standard of names which was accompanied by an increase in the comfort and quality of the ships.

Although most of the attention was centered on the British lines, and especially those running from Liverpool, it must not be thought that the Continental services were neglected. The two lines to Havre were kept very busy, for instance, and paid well.

There was also a very considerable emigrant trade in small sailing ships from Bremen, but not nearly as great as the business men of that ancient Hanseatic port would wish. After having quite a large trade with the United States between the Declaration of Independence and the spread of the Napoleonic Wars, Bremen had suffered a great eclipse in favor of Brake and other German cities, and trade had become so bad that many of its younger merchants had emigrated to America. The poor conditions of the port appeared likely to strangle its trade altogether in the mid-twenties, but in 1827, thanks to the energy and initiative of Johann Smidt, the Mayor of Bremen, the district of Geeste was acquired from the Government of Hanover to make the present port of Bremerhaven. By the summer of 1830 the port works were sufficiently complete for ocean-going ships to be admitted. The first ship to pass through the lock was the American sailing ship *Greater,* on September 13, 1830, but it was not long before quite a considerable emigrant trade was built up in spite of the opposition of the various German governments.

Undoubtedly much of the initial success of the port in handling the steerage traffic was due to the fact that the authorities insisted on reasonable regulations being made and adhered to from the very beginning, the first set being framed in 1832 and giving emigrants from Bremen a very much more comfortable passage than those from any other port.

On the Canadian trade Captain Alexander Allan of Glasgow and George Thompson of Aberdeen, with their respective backers, were still the only people who made any attempt at a regular service and they maintained it with very small tonnage. Their ships were excellent little vessels of their type, most of them loftly brigs with a very large spread of canvas, but some of them barques and even ships. Three hundred tons was about the average for these vessels, but many of them were very much smaller.

In 1831 appeared the advertisements of the new American ship *Covington,* 350 tons, on the Baltimore service, which stated that "The ship's accommodations for passengers are superior and a few respectable persons can be accommodated in the steerage." The New York and Philadelphia packets continued to advertise that beds and bedding would be provided by these ships, while the Boston packets went one better and stated that they were furnished with mattresses, bedding and wines. It should be noted that these were for the cabin passengers only. The *Dorothea* for Philadelphia was described by her agents as being "In all respects one of the finest ships belonging to the United States, built expressly for the East Indian trade." The tradition of the East Indiamen was still very strong in England.

The *George Clinton* on the New York run was described thus: "As a conveyance for goods she is not excelled by any regular packet ship and her accommodations for cabin and steerage passengers are very superior"; while the particular attraction of the *George Canning* and her consorts on the New York run was that they were "Commanded by men of extensive experience and nautical talent," rather a quaint way of expressing it.

For the *Hermitage* on the New Orleans run it was announced "This ship is a regular trader of light draft of water. She will take steam up the river." The same attraction for saving time when the Mississippi was reached was quoted for the *General Putnam,* while some of the packets on the service from London to New York also advertised that they would take advantage of the services of a tug as far as the Downs.

In the Liverpool Press of March, 1831, comes the announcement of another new line with Messrs. Fitzhugh and Grimshaw as agents, announcing that a new line of first-class American ships would sail for New York every week or ten days. The first sailings advertised were the *Meridian,* Captain Adams, 400 tons, "To sail this week and takes no salt"; the *London,* Captain Jesse Brown, 357 tons, to sail the 12th of March, and the *United States,* Captain Windsor, 250 tons, to sail the 17th of March. Unfortunately the *Meridian* could not be dispatched in time for want of a berth to take in her cargo and the *Fredonia,* 408 tons, was added to the list.

A very good idea of the importance of the transatlantic trade in that day is shown by the fact that in 1831, 278 vessels of 4,758 tons entered the Port of New York from Great Britain. Every year showed a substantial increase in the number of emigrants for the United States. In 1828 these figures had been 6,631 from England, 6,197 from Ireland, and 2,717 from Scotland, but by 1830 the figures were 16,352, 3,497 and 1,585 respectively, the total from all parts of Europe being 30,224. In 1831 the figures for England were down, but those for Ireland and Scotland were up, 13,808, 6,721, and 2,078 respectively out of a total of 31,739. There was a still bigger jump in 1832 — 18,947 from England, 6,050 from Ireland, 3,286 from Scotland and 48,589 from all parts of Europe. To cater for this increased traffic, particularly from the Continent, several new concerns were started of which the most important was the third line to run between Havre and New York, its best-known ships being the *Formosa, Galia, Albany, Duchesse d'Orleans, Isaac Bell, Queen Mab* and *Don Quixote*.

But while the sailing packets were improving and increasing their business in this way, a more serious indication of steam competition came in 1833. It was not an attempt at a regular service, it is true, but it showed the improvement of steam navigation and suggested what the steamers could do.

The *Royal William* had been built in 1831 at Quebec on the lines of a popular Clyde steamer with the idea of being run on the St. Lawrence. Her dimensions were 146 by 27 by 17 feet 10 inches, depth of hold, giving her a tonnage of 830. The machinery, which was sent out from England, had a nominal horse power of two hundred. For her original purpose she proved a failure and had been sold to a concern among whose directors was Samuel Cunard. Again she lost money, very largely on account of the decline in trade caused by a cholera epidemic, and it was determined to send her across to England in the hope of finding a purchaser at a good price.

Accordingly she left Quebec for London in August, 1833, coaled at Pictou and Cowes, and arrived at Gravesend in September. No purchaser was forthcoming and she went across to the Continent where she fixed up several profitable charters before being sold to the Spanish Government to attain the honor, as the *Isabel Secunda,* of being the first steam warship to go into action. Her crossing of the Atlantic was a very much more serious indication of progress than that of the *Savannah,* for although she carried plenty of canvas it was essentially a steam passage.

This passage should have attracted the attention of the sailing packet interests and have caused them to take measures to counter the obvious development indicated, but they ignored it completely and regarded it as beneath them. This attitude is rather typical of the packet men of the day, both afloat and ashore. The masters regarded themselves as the aristocrats of the sea, as indeed they were, and this attitude was apt to be resented by smaller craft who met them. Those were the days of nautical courtesy, when it was a point to exchange numbers with every other ship encountered on the high seas. In contemporary logs and journals one frequently finds rather bitter references to making numbers to the Atlantic packets and not getting any notice taken of the signal. At the same time it is only fair to point out that this was not always done, many captains putting the courtesy of the sea before their dignity and answering every signal made by wallowing brigs or droghers as they flew past.

At this period the general Atlantic trade had a severe setback through the trade depression, and it was only the stronger companies which contrived to weather the storm. The Boston packets run by Messrs. Hall, Blake and Henshaw, which were then among the finest on the service, were not strong enough and moreover had just previously suffered a heavy blow by the loss of their crack ship the *Boston,* which was struck by lightning and was apparently uninsured. In 1833, therefore, the company closed down and disposed of its ships to the Eastern trade.

The companies which survived saw the necessity of building bigger and better ships, one of the most famous being the Swallow Tail *Independence* of 1834, a ship which was built by Smith and Dimon of New York and which had a tonnage of 734, a great increase on the average.

Even the famous Black Ball Line felt the trouble and in 1835 it was acquired by Captain Charles H. Marshall, an old Nantucket sailing man who had been one of the first to see the opportunities of the sailing packet ships and who had become one of the best-known commanders in the Black Ball Line. He added a number of very famous ships to the fleet in his determination to beat the Swallow Tail Line, one of the first being the *Montezuma* which was the first Atlantic packet to top the one thousand-ton mark.

In this year also tugboats were established in New York Harbor for the first time, but they had poor power and were seldom employed by the packets which took a great pride in the magnificent seamanship necessary to take them right up to their berths under canvas.

As is only to be expected when so many companies are hard hit, the poorer and less scrupulous concerns attempted to take it out of their passengers, particularly emigrants. Very bitter complaints began to appear in the Press, a typical letter to the *Times* appearing in March which stated that the masters of the ships deliberately tried to make the steerage a hell in order to compel as many people as possible to pay cabin fare. It was stated that although the regulations allowed only two rows of double berths in the steerage, the captains and agents made a point of buying these up to sell at a small premium, and then erected two extra rows for emigrants who could only afford to pay the ordinary price. This further restricted the already limited space in which the emigrants could keep their provision casks and luggage, and made it still more difficult to maintain any standard of decency when the men and women were traveling together.

The writer went on to say that the captains often had to be protected by the police when they arrived at their destination and the emigrants had a chance of giving vent to their feelings. It is significant that the statement, which attracted a good deal of attention, was not denied by the companies or their agents.

Apart from the "flash packets" running to the main ports there was another type of sailing emigrant carrier which is very interesting, but which has been neglected by the historians. That is the little schooner several of which sailed across the Atlantic from the Welsh ports and especially from Felin Heli which is now Port Dinorwic. At that time there was a great demand for Welsh slate in the United States, and as there was great distress in Wales, opportunity was taken to ship a number of emigrants in the tonnage which carried it.

The slates were laid in the bottom of the hold and were covered over with a thick layer of sawdust. The space between this sawdust and the deck was let out to families emigrating, so many cubic feet to each family. Nothing was provided for them except water, which was carried in casks on deck so that it was frequently lost in bad weather, but the settlers would usually make the best of things and stow their furniture and all their worldly possessions into the space at their disposal in such a way that they had a certain amount of privacy for the family inside.

The ships' carpenters would then make everything fast and each family would do its own cooking on a floor of sawdust. How any of the ships escaped destruction by fire is a mystery. Being a frugal and careful people they usually managed to get along fairly well, although as the voyages frequently ran into two and three months it was a great trial. That was before the days of Board of Trade regulations and the schooners carried no reserve food at all, so that if the supplies of any family ran out they starved. It is noteworthy that the Welsh dressers and plain furniture carried out by these settlers are the pieces which are now valued so highly by American collectors and which fetch enormous prices.

In 1835 came yet another warning of the approach of steam, only to be ignored by the packet people as its predecessors were. The Board of the proposed Great Western Railway met in October, 1835, and discussed the line to be built from London to Bristol. Among those present was Brunel, the famous engineer, who remarked, "Why not have it longer and have a steamboat to go from Bristol to New York, to be called the *Great Western?*" At first there was a tendency to laugh at the idea, but three of the biggest members of the Board took it seriously and instructed Brunel to get on with his scheme. Inquiries were made at all the shipbuilding centers and in consequence Brunel published a paper in which he gave his ideas of the construction and maintenance of such a ship, ideas sound enough to have received full attention, and soon afterwards she was laid down.

Instead of considering the possibility of building steamers themselves, the packet men went on developing their original plans and a new company, to become famous immediately, was started between New York and Liverpool in 1836 as the Dramatic Line.

The moving spirit in this concern was Mr. E. K. Collins, who afterwards made such a gallant fight to keep the Stars and Stripes on the Atlantic. He was born at Truro, Massachusetts, in 1802 and was in the shipping business of New York from the age of fifteen. First of all he was in the West Indian trade, both in the office and as supercargo afloat, and at the age of twenty joined his father's brokerage business. When he obtained control of this he continued to center his interest on the West Indian and Mexican trade, and it was not until he founded the Dramatic Line that he took very much notice of transatlantic work.

He began by going to Messrs. Brown and Bell of New York for four new ships, rather larger than the average and differing from them in the flat floors on which he insisted — the *Roscius, Siddons, Shakespeare* and *Garrick*. The house flag was blue over white, with a white "L" in the blue, and as the ships sailed on the same day as the Swallow Tail packets they soon shared the rivalry of the Black Ball Line.

A brief description of the *Roscius* is of interest as showing the lines on which she worked. She had a length of 170 feet with a beam of 36 feet 6 inches and a depth of 22, making her 1,100 tons burden. Her height between decks was six feet six inches, which was regarded as being ample for comfort. Her hull was perfect, and in having the order executed Collins spared no expense to get the finest possible material and workmanship, but he was not so keenly interested in the rigging, and his ships had an unfortunately bad reputation for losing spars and canvas on account of ill-advised economy aloft. It was a curious kink in his character and was the only criticism that was brought against his ships.

At the same time he did not give up his interests altogether in the West Indian and Gulf trades and as soon as the Dramatic Line was well under way he opened a branch across the Atlantic from New Orleans. For this service, whose conditions he knew better than anybody else, he began by building a raised poop into the ships. It was an innovation that was soon copied by his rivals, and was quickly followed by a midship house and finally a topgallant forecastle. In the late thirties also the fashion of painting gun ports around the ships became quite general on the Western Ocean; it had long been popular in the East where the camouflage was no mean protection against pirates.

It was also about this time that the public began to take more interest in the speed of the packets. Notices began to appear in the Press, first only a line and then quite a number in order to satisfy the demand of the readers, mentioning such and such a smart passage. In January, 1836, the *Virginian* did the run from New York to Liverpool in 16 days, but in July the *Independence,* 730 tons, did the run in 14½, the return taking 20. The 650-ton *Toronto* also did the passage from New York to Portsmouth in 14½ days.

The business depression which had hit the owners so hard cleared in America before it did in Europe, with the result that there was a great rush of emigration. The Havre packets drew large numbers from Switzerland, Baden and Alsace, while from the most distressed areas in England and Ireland the parishes concerned arranged emigration schemes and paid the fares of the workless.

Owned by the packet companies under the American flag alone were twenty first-class ships running from New York to Liverpool, twelve to London and fifteen to Havre. The average size of these ships had gone up to six hundred tons, they were built almost entirely in New York and they were probably the fastest sizeable sailing ships in the world.

The London packets to New York sailed from St. Katherine's Dock, now considered only big enough for coasters, on the seventeenth and twenty-seventh of each month. Others called in at Portsmouth, or more usually Cowes, on the first, and tenth and twentieth. The sailing days of the Liverpool and Havre packets to New York remained the same, the first, eighth, sixteenth and twenty-fourth of each month, while the Philadelphia packets sailed from the Mersey on the eighth and twentieth. The Clyde was connected with the United States by three regular ships, while there was a monthly sailing from Liverpool to Boston.

The emigrant rates in the crack packets varied from three guineas to six guineas, children half price, while in the smaller packets or the irregular ships the fare was from five pounds to as low as forty shillings, the average being in the neighborhood of four pounds. To these fares the passenger always had to add forty or fifty shillings as the lowest price at which he could feed himself with reasonable economy.

The irregular ships, or "common traders" as they were frequently called, also cut the cabin fares and were carrying passengers across at from fifteen to twenty-five pounds.

In the spring of 1837 the United States Government imposed a landing tax of ten dollars on every emigrant landed, and this cut so deeply into the owners' profits when they were cutting rates that eleven British ships decided to run the risk of refusing to pay it and were promptly detained and very nearly forfeited. Until then the privilege to land had only cost twenty cents, while in addition the captain had the alternative of paying one dollar a head or entering into a bond that his passengers would not fall on the rates within two years of their landing. Needless to say he invariably preferred to pay the dollar and end the liability.

The obvious disadvantage of the accepted system of carrying steerage passengers in sail was shown by the case of the ship *Diamond* in 1837 which attracted more attention than scores of others which were quite as bad. She arrived at New York in the February of that year, having been one hundred days out. She had left Liverpool with one hundred eighty passengers and of these seventeen had died of sheer starvation when the food with which they had provided themselves had run out. The crew had been put on short rations and nothing could be spared from the ship's own scanty supply for the passengers. The result was that appalling scenes took place and those who had contrived to save a little food demanded any price for it from their unfortunate fellow travelers. The day before the ship arrived at New York a sovereign had been offered and refused for a single potato, while one man had lived for nine days on the potato peelings that he had contrived to find.

But the change was at hand, although it was many years before it was complete. In 1838 quite a batch of steamship schemes were either launched or reached fruition. This in spite of the fact that, speaking at the Royal Institution at Liverpool at the beginning of the year, Doctor Lardner had stated that "As to the project which was announced in the newspapers of making the voyage directly from New York to Liverpool by steam it was, he had no hesitation in saying, perfectly chimerical and they might as well talk of making a voyage from New York to the moon." In later years many efforts were made to give a different meaning to this emphatic statement, but they were never taken seriously.

One of the steam schemes which did not fructify, but which was very interesting, was the construction of the 325-ton paddler *Columbus* specially for the Atlantic. Howard's quicksilver boiler was then recently invented and had attracted a lot of attention in naval as well as mercantile circles; the *Columbus* was built to take it and to show that the Atlantic crossing by steam was quite an easy feat. Her inventor claimed that her coal consumption was only one quarter that of a contemporary steamer of ordinary design, and she certainly succeeded in cruising round the coast at a speed of ten knots, burning only three tons of mixed coke and anthracite per day. Both in the use of anthracite coal and comparatively high-pressure steam the inventor was long before his day and there is little doubt that some very useful work might have been done had not a serious explosion condemned the boiler with the Navy and general public, with the result that the little *Columbus* never had her chance of showing what she could do on the service for which she was designed.

There were other schemes which did not fail. In April, 1838, almost unnoticed then or since, the British steamer *City of Kingston* arrived at New York from Cork and was subsequently put on the West Indian and American coasting trades. But of more importance were the passages of the *Sirius, Great Western, Royal William* and *Liverpool* in the same year and they have received all the attention possible. The *Sirius* belonged to the St. George's Steam Packet Company and was originally designed for the Dublin cross-Channel run, but in 1838 was chartered by the British and American Steam Navigation Company pending the completion of the tonnage they had on order and left Blackwall, London, on the 28th of March.

She had been built at Leith in the previous year, a little wooden paddler of 703 tons, with a simple engine working at 15 pounds pressure and driving a 24-foot paddle. On the engineering side she was an improvement on most of her contemporaries in that she used fresh water in her boilers and was fitted with a condenser. Although small, she had cost her owners twenty-seven thousand pounds to build, which was regarded as a colossal sum.

Going down the Thames under the command of Lieutenant Roberts, R.N., who had been specially engaged to take her out, she passed the *Great Western,* which was to be her rival, while she was being tried, and off Gravesend had lengthened the distance between them to a mile. Just astern of her sailed the American Line sailing packet *Quebec,* Captain Herbert, and there were many wagers made on the river that the sailing vessel would arrive at New York first.

The *Sirius* called in at Cork and left there at eleven o'clock on the morning of April 4 with saloon, fore-cabin and steerage passengers and so weighed down with four hundred fifty tons of coal in addition to her stores that she certainly would not have been allowed to sail nowadays and must inevitably have foundered had she met bad weather. She arrived at New York on the 22d of April and almost immediately afterwards, to everybody's surprise, the *Great Western* arrived from Bristol.

Like the *Sirius,* the *Great Western,* whose conception has already been described, originally started from the Thames, leaving Blackwall in the early morning of March 31, 1838, and running to Gravesend against the strong tide in under two hours, which was regarded as a very smart passage for a ship of her size. Brunel, Senior, disembarked at the Chapman Sands in a boat, and five miles above the Nore a fire was discovered in the lagging of the boilers. The stokehold crew were driven on deck by the smoke and she was beached on the sands, where the engines ran for an hour before they could be stopped. Luckily the fire did only superficial damage to the lagging and the deck, and with the rising tide the ship refloated and proceeded on her way to Bristol. She did the 670 miles in 58½ hours, including the time lost by the accident, the actual steaming time averaging nearly 13 miles an hour.

She sailed from the Avon at noon on the 9th of April and it is a matter of historical interest to note her days' runs. From noon to noon they were 240 miles, 213, 206, 231, 218, 218, 241, 243, 185, 169, 206, 183, 192, 198, 230 and 50, which brought her into New York Harbor. With regard to her speed, it averaged 8.2 knots on the passage and it is interesting to note that she was sighted by the sailing packet *Westminster* on the 15th of April and again on the twenty-second, so that she was not very much superior to the sailing ships.

She was undoubtedly a very much finer steamer than the *Sirius,* and fully deserved her better time. She was built of wood by Patterson of Bristol in 1837, a ship 236 feet long by 58.4 feet over the paddles by 16 feet draft, the hull being sailed round from Bristol to the Thames to receive the 750 horse-power engines made by Maudslay's. They worked at five pounds pressure and consumed nearly eight pounds of coal per one horse power per hour.

When she had been duly fêted in New York the *Great Western* left again at three-thirty in the afternoon of May 7, carrying sixty-eight cabin passengers, which was the largest number that had ever been brought across by a single ship, and twenty thousand letters. The time occupied by the passage was fourteen days, seventeen and one-half hours, the engines working at between seventeen and nineteen revolutions per minute and the boilers consuming less than a ton of coal per hour.

The *Sirius* left New York on the first of May and arrived at Falmouth on the nineteenth. Her second sailing was advertised to take place from London on the twenty-third of May and from Cork on the twenty-eighth. Actually she left London three days late and made a record passage of forty-eight hours round to Cork. She finally left Cork at five P. M. on the thirty-first of May and arrived at New York at dusk on the eighteenth of June. Homeward she brought twenty passengers in the saloon and six in the fore cabin, doing the passage to Plymouth in fifteen days. The *Great Western* responded on her second voyage by taking out sixty-five in the cabin and over thirty thousand minted sovereigns, doing the passage in fourteen and one-half days from Bristol and bringing ninety-two passengers home. By that time a steam passage across the Atlantic was beginning to be regarded as being safe and there was quite a rush to get accommodation.

Liverpool also commenced its steam connection with New York in the same year, when advertisements in the papers announced:

"The City of Dublin Steam Packet Co's unrivaled safety steamship *Royal William,* Lieutenant W. Swainson, R.N., Commander, 617 tons burden, engines 276 h.p., will sail from Liverpool to New York without touching at any port in the Irish Channel on Thursday, the 5th July at 6 o'clock in the evening. The character of this superior vessel for speed and safety is already well established. She is constructed on the plan of being divided into separate compartments by water-tight bulkheads which have given such security and confidence to the public. The *Royal William* will remain 10 days at New York to allow travelers to visit the splendid scenery of the Hudson River and the celebrated Falls of Niagara. Her return from that port will therefore be postponed until the 29th July.

"The cabin accommodations of the *Royal William* are arranged to ensure every comfort to passengers. Fare, 35 guineas, including wines and all stores. An experienced surgeon will accompany the vessel. Apply for berths in London to John Osborne at 16, John Street, Crutched Friars, and at Liverpool to S. Perry & Co., 27, Water Street."

A list of agents in various towns was also given and it was intimated that passengers from these towns would have their fare to Liverpool paid.

She actually weighed anchor in the Mersey at six-thirty P. M. with thirty passengers on board and left the river an hour and a half later. She had nearly ten thousand letters on board. Her track took her across numerous sailing packets who reported her almost daily, generally as being in excellent trim and steaming remarkably fast. In the Western Atlantic she encountered very heavy weather and finally arrived at New York on the 25th of July, having consumed rather more than 351 tons of coal on the voyage and having 59 remaining in her bunkers. Coal was the great problem of the steam navigator across the Western Ocean in those days and to ascertain the exact consumption all her bunkers had been put up in sacks of two hundredweight apiece. This consumption worked out at six and one fourth pounds per indicated horse power per hour, which in the thirties was phenomenal economy and did more than anything else to make people realize the possibilities of steam navigation across the Atlantic.

The owners of the *Royal William,* who called themselves the Trans-Atlantic Steamship Company, next purchased the *Liverpool,* a ship of 1,050 tons burden with engines of 464 horse power, from Sir John Tobin and planned to run her on the New York service, with other ships then under construction. Her size permitted her accommodation to be very much better than that of the earlier ships and the idea of a transatlantic service had been in the minds of her original designers.

Like most of the early passenger ships she was put under the command of a naval officer, Lieutenant Fayrer, and after a trial trip to Dublin and back she sailed from Liverpool on the 20th of October. She had on board over fifty saloon passengers and one hundred and fifty tons of fine cargo at five pounds a ton freight. She loaded five hundred and sixty-three tons of bunkers, but meeting with head winds her commander got anxious that she might run out of coal and when she had been at sea six days and had steamed over nine hundred miles he returned to Cork for more, reaching port three days afterwards. Seven of her passengers left her there, for although she behaved well at sea the decks had leaked and made the cabins exceedingly uncomfortable, in addition to damaging some of her fine cargo. She sailed again on the 6th of November and picked up the dismasted Dutch transport *Banca* in a dangerous position, eventually arriving at New York on the twenty-third. Her rival, the *Great Western,* was rather more lucky and collected nine hundred pounds in freight for the one hundred and twenty tons of fine goods that she carried in safety and good condition. When the winter service came into operation the *Royal William* had to refuse to carry any cargo in order to have a safe margin of coal, the saloon passage rate being forty guineas.

Important as were these pioneer steamship passages, the year 1838 was remembered for something even more important than they, for it saw the launching of the Cunard Scheme which made all the difference to Atlantic travel. The story of the conception of the Cunard Line has been told many times, but no history of the Western Ocean is complete without it. Old Samuel Cunard, a Halifax Quaker, had dreamed of a steamship service between Liverpool, Halifax and Boston as early as 1830, and everything that he saw after that convinced him that his scheme was a practical one, if carried out in the right way. Accordingly, in 1838, when he was agent for the East India Company at Halifax, he determined to take the plunge and sail to England to consult with Mr. Melvill, secretary of the East India Company, who was interested in steam navigation to the East.

Mr. Melvill's help consisted of giving him an introduction to Robert Napier, who was already making a great name for himself at Glasgow as a marine engineer. Napier heard what Cunard had to say and liked the scheme, giving him real help by introducing him to two of the outstanding British steamship owners, George and David McIver. It was these four men in company who evolved the Cunard Line as it started and laid down the principles which rule its conduct to-day, so that they deserve at least a brief biographical notice.

Samuel Cunard was a Philadelphia Quaker by family, his forefathers having migrated from Wales early in the seventeenth century, but was born in Halifax, Nova Scotia, in 1788, whence his parents had shifted when the United States gained their independence. As a youngster he served the usual apprenticeship in a merchant's office and while still a young man bought a partnership in a firm of Boston shipowners. But although he was soon well known and very well loved in Massachusetts, his heart was still in Halifax and that fact had an appreciable influence on the history of his line.

He was only twenty-seven when, quite apart from his Boston partners, he undertook to maintain a British mail service between Boston, Newfoundland and Bermuda, but was not slow in appreciating the fact that the mail services of the future would have to be maintained by steam if any regularity was to be hoped for. He talked about a transatlantic steam service as early at 1830 and was laughed at for his pains. But he was not discouraged and sank a considerable capital in the unlucky first (Canadian) *Royal William.* He accepted the position of director of the owning company and obtained all the experience in the management of steamers that he possibly could.

In the meantime he had become the Halifax agent of the East India Company, always with the idea of his steamship service in his mind and always eager to pick up any odd piece of steamship information that would help him complete his plans. It was due to this care that he was able to present his idea with so much detail and so convincingly.

George Burns had already made a mark for himself in the shipping world at that date. Born in 1795, the son of a distinguished Scottish divine, he was one of a large family who all contrived to find success. In 1818 he and his brother James commenced business in Glasgow as general merchants, and six years later they went into partnership with Mr. Hugh Matthie of Liverpool and put six small sailing vessels on service between the Clyde and the Mersey. Within a few months they had commenced to replace these sailing coasters by steamers and in 1830 they amalgamated their business with that of Messrs. McIver of Liverpool and ran a number of services, particularly on the West coast of Scotland and among the islands. James interested himself entirely in the mercantile side; George took care of shipping and soon made a name for himself as one of the keenest and most progressive of the British owners.

David McIver was the first member of his family to be interested. He was then thirty-one years old and his early business experience was in the office of the American Consul at Greenock. While still a young man he took his brother Charles, four years his junior, into partnership and together they soon made very real progress in the business of running coasting steamers.

Robert Napier was an older man, and in many ways typical of the finest type of Clydeside engineer. He was born at Dumbarton in 1791 and after he was out of his time he invested his all in a small smithy in Glasgow. But the possibilities of marine engineering fascinated him and in 1823 he made his first set, small but very successful. After that he had to fight every step of the way, but he never looked back and when Cunard met him he had a reputation second to none.

These were the men whom Cunard had to convince, for although they were all three very experienced men, their experience had been confined to coastal and cross-Channel work, and they wanted a deal of persuading before they could see any virtue or possibility in a transatlantic service. It wanted all Cunard's Quaker doggedness and good nature to carry the negotiations through, but when everything was fixed and settled it was the most wonderful combination of personalities that has ever been known in the shipping world.

When they had finally fully discussed Cunard's scheme, had condemned it in some places and added to it in others, they agreed to back him if he could secure the mail contract. Mr. Burns agreed to superintend the construction of the ships on the Clyde, Mr. Napier to fit them with the finest possible machinery, Mr. McIver to manage them in Liverpool and Mr. Cunard and his son to take over the Boston and Halifax ends. Also they made one very definite point which was to have a great influence on their success. The ships that they planned were no better than some of the vessels which had preceded them, but they were all agreed that they should be built in classes instead of in single unconnected units, and the Atlantic traveler was no slower to appreciate the advantages of that policy than the owners.

But before the arrangements were completed there was a check, and it came from a most unexpected direction. It happened that while Cunard was over in England but before his ideas were generally known, two very prominent citizens of Halifax, the Honorable Joseph Howe and Judge Haliburton, who is still known to a few readers under his pen name of "Sam Slick," decided to cross the Atlantic in one of the Post-office packet brigs. While they were wallowing across, the steamer *Sirius* overtook them, transshipped their mail and was soon out of sight. They were greatly impressed by this means of carrying the mails and as soon as they arrived in England they went down to Bristol to confer with the Great Western Railway Company with the idea of taking up a mail contract to be maintained by the *Great Western* and consorts to be built later. The directors of the company saw the advantage and at once agreed, much to the horror of Cunard, who fully realized the weight of influence at their command. He rushed up to London, met Mr. Howe and Judge Haliburton, and succeeded in convincing them that his scheme was the better. The result was that, just when the Great Western Railway Company thought that everything was arranged in their favor, the Admiralty advertised openly for tenders for a steam mail contract.

To the surprise and chagrin of the Great Western directors the Admiralty found greater virtue in Cunard's suggestion and they signed a contract with him, George Burns and David McIver. Originally the idea was that the Government should pay a subsidy of fifty-five thousand pounds per annum, while on their part the company were to provide three suitable steamers and maintain a sailing twice monthly for eight months of the year and once a month in winter, starting at Liverpool and calling at Halifax on the way to Boston. This contract was modified before it came into force on account of the obvious necessity of having some reserve and the company agreed to build four boats in return for eighty-one thousand pounds per annum, reckoned at just under thirty-three hundred pounds per round voyage. The political influence of the Great Western Railway secured an investigation into this contract, but could not upset it and the construction of the four pioneer Cunarders started on the Clyde.

While the Cunarders were being designed and built, transatlantic steam shipping continued to make progress. The next steamer to be put on the service was the *British Queen* which had Napier's engines fitted into her on the Clyde and then called in at Liverpool on her way down round to London to take her first sailing which was advertised as on June 29, 1839. It was postponed until the 10th of July, when she left with two hundred twenty passengers and eight hundred tons of cargo, in addition to six hundred tons of coal. She made the passage, with a call at Spithead for extra passengers and mails, in fifteen and one-half days. As the very last thing in Atlantic steamers she attracted a good deal of attention and her smart passage gave her people plenty to talk about, particularly when she fell in with the barque *Ethel* of Biddeford which was found to be abandoned and plundered by pirates.

The *British Queen* charged the same fare for all parts of the ship and gave the same privileges, but on her second voyage Captain Roberts had great difficulty in inducing any passenger to occupy the forward saloon. The company already provided champagne twice a week and to tempt them forward he adhered to this rule for the after cabin but promised the fore cabin free champagne every day. On the second voyage this was successful, but after the third the seventy passengers published a protest in the New York Press against the poor quality of the bread, butter and water provided by the ship. By this time the *Liverpool* had dropped out of the Atlantic competition, having been sold to the Peninsular Steam Navigation Company — later the Peninsular and Oriental Line — for the mail service to Spain and Portugal. Altogether she had done six voyages to Liverpool, including one that had been abandoned.

All these early steamers were most expensive to run, but once the public had obtained a certain amount of confidence in them they began to compete very seriously with the sailing packets. The rate-cutting competition which afterwards became very severe began when the London and New York line of packets gave notice that from March, 1839, their saloon fare would be reduced from thirty-five guineas to twenty-five, a level at which a steamer certainly could not make both ends meet.

This enabled the sailing interests to maintain with perfect truth that their ships were cheaper, but they were not on such certain ground when they claimed that they were faster and safer too. The steamship people took up the question of speed and made out a detailed return of the performances of the ships of the principal packet companies for comparison with those of the *Great Western, British Queen* and *Liverpool* during the year 1839.

These figures are as follows: —

| | WESTWARD | | | EASTWARD | | |
|---|---|---|---|---|---|---|
| **Sailing Ships** | *Longest days* | *Shortest days* | *Average days* | *Longest days* | *Shortest days* | *Average days* |
| Black Ball Line | 48 | 22 | 33.17 | 36 | 18 | 22.12 |
| Dramatic Line | 38 | 23 | 30.12 | 25 | 17 | 20.12 |
| Star Line | 45 | 27 | 36 | 28 | 21 | 24 |
| Swallow Tail Line | 45 | 28 | 35 | 31 | 17 | 22.12 |
| **Steamships** | | | | | | |
| *Great Western* | 21.12 | 13 | 16.12 | 15 | 12.6 | 13.9 |
| *British Queen* | 20.9 | 14.12 | 17.8 | 21.12 | 13.12 | 16.12 |
| *Liverpool* | 18.12 | 16 | 17.4 | 24 | 13.18 | 15.16 |
| Average of all the sailing ships | 44 | 25 | 34.1¼ | 30 | 18.6 | 22.1 |
| Average of all the steamships | 20.3 | 14.15 | 17 | 21.4 | 13.4 | 15.4¼ |
| Difference in favor of steamships | 23.21 | 10.9 | 17.1¼ | 8.20 | 5.2 | 7.13¼ |

On their claim to added safety the advocates of sail also had the very worst of luck, for the packet fleet suffered severely by the great gale at Liverpool in January, 1839, and that in the manner most calculated to attract public attention. The packet ship *Pennsylvania* had been windbound in the mouth of the Mersey for a fortnight but finally she contrived to get away, only to put back on account of the gale that she met outside. In attempting to enter the river she went ashore on the sandbanks just outside. At the time she had only five cabin passengers on board, in addition to twenty-five men in the crew under Captain Smith. Of these the captain and fourteen others were lost. The American packets *Oxford* and *St. Andrew* were also lost, but happily there were no casualties in the latter case. Worst of all was the British *Lockwood,* which was outward bound with one hundred and eight people on board, passengers and crew. She dragged her anchors and finally went ashore, one sailor and fifty-two of her passengers being drowned.

It was a heavy blow to them in their struggle for popular favor, but they were not the type to go down under it. Instead of being deterred, the principal lines immediately took steps to build bigger and better ships, a typical one being the *Patrick Henry,* built by Brown and Bell in 1839, with a tonnage of over one thousand.

The decade ended with a promise of better things to come as far as steam was concerned, for the Cunard plans had been published and fully discussed, and in December, 1839, the Atlantic Steamship Company appended a note to their advertisement:

"The Company's new steamship of 1,400 tons burthen will commence running the ensuing year (1840), thus affording a departure on the 20th of each month to and from Liverpool and New York."

# *Chapter II: The Forties*

The decade beginning with 1840 must always be remembered as the one which first gave steam its great opportunity on the Western Ocean, and this opportunity must always be connected with the name of Samuel Cunard, for it was undoubtedly his genius which made it. Therefore the general tendency is to consider the year 1840 in connection with the maiden sailing of the Cunard Line only. But it must be remembered that this event did not occur until the 4th of July and that there was an Atlantic steamer before then making passages which deserve a certain amount of notice.

She was the *British Queen,* already mentioned for her three voyages in 1839. They had done her a good deal of damage, and while she was laid off service for the winter, opportunity was taken to carry out repairs to the tune of thirteen thousand pounds, then considered a very big sum. She sailed again from Portsmouth early in March, 1840, and made a passage of just under sixteen days, but in leaving New York on the return voyage the pilot boat was capsized and two of its people drowned, an accident which was naturally used to the discredit of the steamer.

The next incident to be discussed was in connection with the *President,* which had been built at Limehouse on the Thames and launched in December, 1839, then going around to Liverpool under sail to receive her engines. She was picked up by the *Royal William,* unmanageable, off the Start, being ill-ballasted and having rolled all the masts out of herself, and towed into Plymouth. After repairs had been carried out she sailed again, received her machinery, and was ready to leave Liverpool on her maiden voyage to New York on the first of August, 1840. The outward passage took seventeen days, as did also the return, but she was well fitted and was satisfactorily patronized by passengers and the shippers of fine goods.

She was a very big ship for her day, her tonnage being 2,366 and the nominal horse power of her paddle engines, which were built by Fawcett and Company, on the Mersey, 540. In general design she was an improved *British Queen,* and when she came out she made as great a stir as the *Mauretania.*

The *United States,* a wooden paddler of fourteen hundred tons burden, was launched for the Transatlantic Steam Navigation Company to run alongside the *Liverpool* on the 7th of March, 1840, but she never took her place on the transatlantic service for she was sold before she was ready for sea to the Peninsular and Oriental Line, who renamed her *Oriental* for their mail service.

These ships, however, were completely eclipsed when the Cunard liners started transatlantic operations on July 4, 1840. The details of the *Britannia* and her three sisters have been described *ad nauseam,* wooden paddlers 207 feet long on the keel with a beam of 34.2 feet inside the paddlers, giving a tonnage by the measurement then in rule of about 1,150. The engines took up over seventy feet of the length of the ships, and were all built by Messrs. R. Napier and Company on the Clyde. They were side-lever machines with a nominal horse power of rather more than four hundred, capable of driving the ship at a speed of eight and one-half knots on thirty-eight tons of coal per day.

They were two-decked ships, the upper deck having the officers' cabins, galley, bakery and cow house, while on the main deck were two dining saloons, the accommodation for her one hundred and fifteen cabin passengers and all the other necessary fittings for a passenger ship. Only cabin passengers were carried, the emigrants of that day having no alternative to the sailing ships. In addition, the *Britannia* and her sisters carried two hundred and twenty-five tons of cargo, all at special rates.

Needless to say, steam steering gear had not been thought of when the earliest Cunarders came out, that convenience not being introduced until the famous *Great Eastern* was designed. In the *Britannia* and her consorts, and for several classes afterwards, the hand steering was right aft, the wheelhouse having the captain's cabin on one side of it and the chief officer's on the other. Multiple wheels were fitted so that in bad weather six or even more seamen could be at the wheel and were frequently needed.

Smoking was not permitted below decks and it was not until later that a smoke room of sorts — chronically uncomfortable at that — was fitted at all. Those who wanted to smoke were supposed to confine themselves to the engine room fiddleys, a most uncomfortable spot, although unofficially many were permitted to find a lee in way of the paddle boxes. Poultry of all sorts was kept in coops on deck and a special deck house with padded sides was provided for the accommodation of the ship's cow, whose milk was reserved for the use of women, children and invalids.

The condition of the liner officers when the Cunard Line was started is supplied by a note drawn up by the office for the guidance of Captain Woodruff. The officer's mess was to consist of the first, second and third mates, the chief engineer, chaplain, surgeon and any respectable passenger that they chose to invite to join them. The third mate was the mess caterer and he also had to attend to the issuing of practically all the provisions of the ship, a duty which would normally appear to be that of the purser. In the officers' mess the company provided sherry, ale, porter and spirits, the mess being invited to decide upon a daily scale which they considered reasonable and afterwards to conform rigidly to it. The company do not appear to have laid down any limit, but significantly state that they "expect the quantity to be moderate and that the officers of the mess will prevent any abuses."

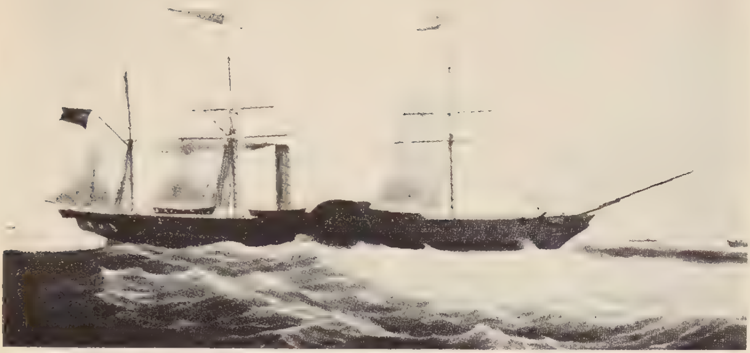
The officer who was not mentioned in these regulations, but who must have been mentioned many times a day by the ship's people, was the mail officer. In those days the postal contracts were in the hands of the Admiralty and not of the Post-office, and that department saw in the steamers an excellent opportunity of finding employment for a number of officers who had claims on it. So the law provided that every steamer carrying mails should also carry a naval mail officer who should be responsible for the mails and also occasionally for the ship herself, superseding her captain. As the officers so selected were generally those for whom the Navy itself had found no use since the end of the Napoleonic Wars they were seldom the best in the service and friction was constant. Finally the situation became intolerable and the Cunard Company was willing to pay a considerable sum to be relieved of them.

The engineers' mess was to receive fresh meat and cabin bread, and in addition one gill of brandy and two bottles of porter were provided by the company for each member.

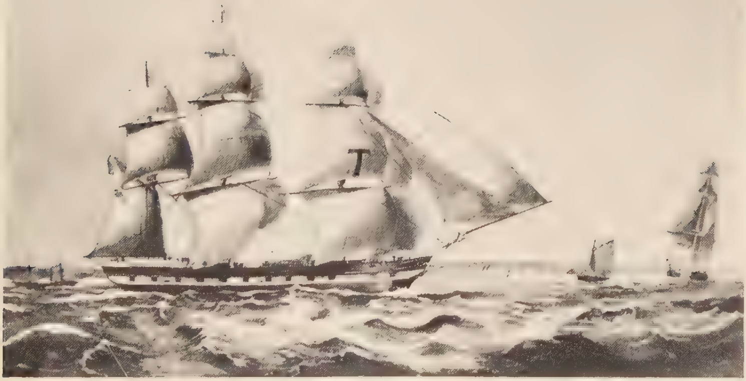
In the forecastle the seamen and "idlers" were to have their three meals a day, breakfast at eight, dinner at noon and supper at six o'clock. Each was provided with a generous ration of meat and vegetables, and in addition bread, potatoes and water were to be issued as required, but not to be wasted. This appears particularly generous on the part of the company. A glass of grog was to be issued to each watch, while the chief officer had the right to issue as much more as he considered proper. The firemen and coal trimmers received the same treatment, but their extra grog was at the discretion of the chief engineer instead of the first mate.

All the ships were built on the Clyde, the *Britannia* by Robert Duncan, the *Acadia* by John Wood, the *Caledonia* by Charles Wood and the *Columbia* by Robert Steele, a shipbuilder who had already worked up a big reputation for the construction of sailing ships and who was to increase it greatly in the latter days of sail. It was Cunard's own inspiration to have these ships built as precise sisters, and there is not the least doubt that it was very largely due to this that the company was a success from the first. The steamers which had crossed the Atlantic before them were somewhat finer than the first Cunarders, but they never secured popular favor because they were so very varied in design. Then, as now, passengers wanted to know something of what they were in for, and although they occasionally got a surprise, as witness Charles Dickens' experiences in the *Britannia,* they at least had some chance when all the ships of the line were built to the same design.

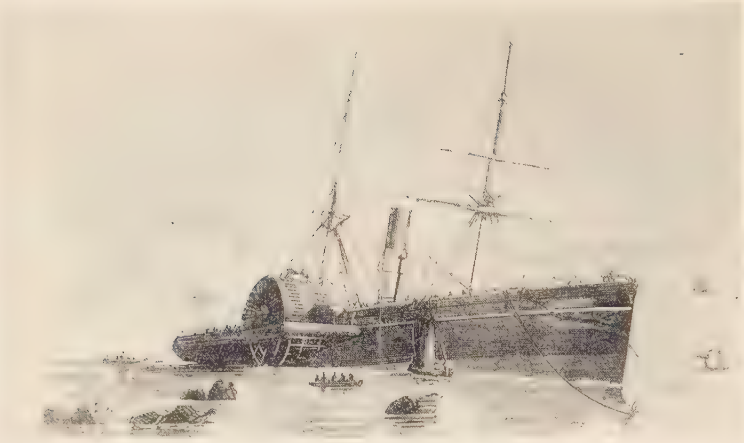
The first sailing of the *Britannia* was held up for a few days and eventually she got away from Liverpool on July 4, 1840, the finest day possible for enlisting American support and sympathy. Even then the sailing did not go off without a hitch, for the ceremony had to be considerably curtailed when it was found that she was too big to go alongside the landing stage at Liverpool and was forced to take her passengers on board by tender in midstream. Samuel Cunard sailed with her on her maiden voyage, for he was always a man who wanted to know himself just how things were going and was never content to trust to the reports of subordinates. Another reason was that he was very anxious about her coal supply, and when one realizes that her engines consumed 4.7 pounds per indicated horse power per hour compared with the .683



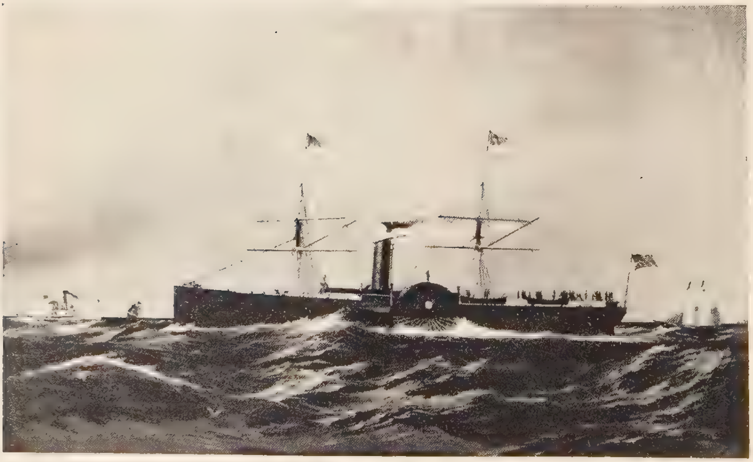
The Cunarder *Acadia,* Fastest of the Quartette Which Began the Service in 1840



*Joshua Bates,* One of McKay's First Packets, Built for Enoch Train



The Wreck of the *Humboldt,* One of the First Steamships to Carry the Stars and Stripes on the Western Ocean



The *Baltic,* One of the Pioneer Collins Fleet and the Fastest of the Four pounds of oil per standard horse power per hour of the new record breaker *Bremen*, his fears were certainly fairly well justified. That anxiety for the coal supply was one of the reasons for the Halifax call, although as a good Nova Scotiaman, Cunard was always anxious for it.

She made Boston fourteen days eight hours out of Liverpool, thirteen days twenty hours net steaming time. The New England port was more than delighted to be made the terminal of a service which appeared to have such promise and Cunard received no less than 1,873 invitations to dinner from hospitable Bostonians.

The people of Boston had given just as kindly and nearly as enthusiastic a reception to Cunard's son and Captain Douglas when they brought the little *Unicorn* into the port on June 2, 1840. Hers was in fact the first Cunard sailing, although it is usually ignored, as she was not a mail ship. She was designed to run the mails, passengers and a certain amount of high-priced cargo from Quebec to Picton where she was linked up with the transatlantic steamers, and for that purpose had been purchased by Cunard. She was built at Greenock in 1838, a steamer with dimensions 162 feet by 23, having a tonnage of 390 and a nominal horse power of 260. She served her purchasers excellently until she was wrecked in 1844 near the mouth of the St. Lawrence.

The Cunard Line had taken full advantage of their opportunities of good publicity for the maiden sailing of the *Britannia*, but having reached Boston in good time it was not likely that she would get home again without a counter effort by her established rivals. The *British Queen* so arranged her sailing that it might be called a race between them, but making due allowance for the difference in distance between Liverpool and Boston and Portsmouth and New York there was a clear day in the Cunarder's favor and every care was taken that the public should hear all about it.

The other three Cunarders followed the *Britannia* in rapid succession and the regular service was maintained — a remarkably regular service considering the difficulties with which they had to contend and the poor material with which they had to work. But all the steamers put together could only handle a very small proportion of the steady flood of Westerly travel and the sailing ships still carried the great bulk of it. They professed to have a great contempt for the "steam wagons," and maintained that they would never be a serious competitor to sail. The fact that the sailing packets were improving rapidly they ascribed to keen competition between themselves, not to any fear of the steamer. To a certain extent that was true. But the Cunard mail contract was a very sad blow to their pride, and the far better average time made by the steamers soon attracted attention and support from those who could afford their rates.

The great majority could not, and there were sailing ships available to suit all purses. A description of the normal life in an Atlantic emigrant ship in the forties is interesting, although it must be remembered that the ship described was not one of the regular packets, which always kept to their schedule sailing day and which gave superior convenience if not treatment, but one that was roughly fitted with passenger accommodation whose people were not altogether used to the trade.

She was the *Julius MacGregor,* the steerage fare out from Liverpool to New York being £2,15s, with a small supplement for the second class which was only roughly divided from the steerage by a bulkhead of boards several inches apart, accommodation which was neither so well lighted nor so well ventilated, but which had the advantage of quieter company.

The first thing that the intending settler had to do was to stock himself for the voyage, for which purpose a number of emigrants' shops existed all round the Liverpool docks, selling not only food but the necessary cooking utensils, pannikins and plates. Everything sold in these shops was, as a rule, of vile quality, and the luckless emigrant who found his saucepan coming to pieces the first time he used it had a very bad time for the rest of the voyage, for the company only bound themselves to supply water and firing. The knowing emigrant bought his provisions from some respectable tradesman in the town well away from the docks, but very few of them were knowing, and scarcely any had sufficient experience of the sea to know just what to buy. It was not until the middle forties that regulations were passed which made the shipowners supply all steerage passengers with bread and potatoes.

Another great hardship for the steerage passengers in all but the regular mail ships was that no fires were allowed on board while the ship was in dock, so that they were unable to cook the provisions they had bought and as the sailing was sometimes delayed by as much as ten days in the hope of raking in a few more passengers the poor folk were put to considerable hardship in buying their food ashore. In addition to this, every effort was made to keep them below decks.

In the *Julius MacGregor* the second-class accommodation consisted of a single compartment, bulkheaded off from the steerage in the manner described, with wooden berths of the roughest description in two tiers all round it. These berths were really nothing more than a long trough, for no effort was made to separate each passenger's share of the accommodation, and although they were only supposed to sleep two abreast, three or even four were quite usual.

Not the least attempt was made to divide the sexes or to provide even the most elementary amenities of life, but the passengers themselves seem to have done as much as they possibly could to improve matters and, taken in the mass, they appear to have been an extraordinarily decent crowd. It is worth mentioning that in the Australian and New Zealand emigrant ships at this time very much better arrangements were made — single men forward, married couples amidships, single girls aft — and the strictest discipline maintained.

Beside the bunks were placed the boxes with which all the emigrants provided themselves to contain their food, cooking utensils and few necessary clothes. These also formed the seats, the remainder of the luggage being lumped together in the center of the cabin to form a table.

The cooking arrangements in these ships were almost invariably on deck, a big grate being arranged against each side of the ship alongside the longboat. No arrangements were made for kindling the fire; whichever passenger happened to be on deck first was expected to do it. When it was lit there was a rush for priority at it, every man and woman cooking his or her individual meals until the passengers settled down to know one another and could arrange things more economically. Priority at the stove was a constant cause of bickering among the emigrants, and if this grew too troublesome the mates did not hesitate to use the rope's end. In bad weather cooking was often impossible.

This scandal continued for many years, but a difference was certainly made in 1844 when the British Protective Emigrant Board was founded, soon to be joined by the Irish Protective Society, for the protection of emigrants going across to the United States. The public had begun to realize that the majority were victimized the moment they arrived in New York. This victimization must have been a very profitable business, for it paid the boarding-house keepers to have their agents traveling back and forth across the Atlantic in the packet ships and worming their way into the confidence of the new settlers, most of whom were all too ready to listen to any story of the Land of Promise. If they listened to the advice so generously given they found themselves in tenement houses in New York which were run by lodging-house keepers and forwarding office owners, working in conjunction, and once there every measure was taken to detain them and every obstacle put in the way of their departure as long as their money lasted.

When finally their funds were exhausted, the settlers were "forwarded," as it was called, in the direction in which they wanted to go, but there it ended. Occasionally, it is true, they were furnished with a ticket that took them to the end of their journey, but it was invariably at a price very much higher than they could have obtained themselves had they gone to the booking office. More usually they were given a ticket which they accepted as taking them the whole distance, but which they found only carried them far enough away from New York to prevent their being troublesome to the swindlers. The result of falling into the hands of one of these runners was invariably that the settler lost all the little capital that he had collected for his start in the New World, and had there not been such wonderful opportunities for anybody willing to work, the distress would have been terrible. The majority of these boarding-house keepers maintained their staffs of paid bullies, for the first holiday taken by the successful emigrant was often to New York in the hope of squaring accounts.

The two protection societies were formed to give accurate information to the settlers, and it is worth noting that there were as many Americans as Britons at the head of affairs. The thinking men in the

United States appreciated the fact that the bad old system was doing infinite harm to the country. Unfortunately it was impossible to stamp it out legally, but they did their best to circumvent the activities of the agents.

And while such societies were looking after the welfare of the packet emigrant ashore the owners were doing a good deal to better his lot afloat by improving their tonnage. Better and bigger ships made a good deal of difference but it should be remembered that the emigrant under sail never was and never could be comfortable.

But a lot could be done by providing faster ships which at least reduced the period of purgatory, and much of the credit for improving the speed of the packets must go to Donald McKay, who designed and built some of the most successful, as well as the most beautiful, sailing ships which ever wore the Stars and Stripes. Born in Shelburne, Nova Scotia, in 1810, he migrated to the States at the age of sixteen and went in for shipbuilding. As an apprentice in Smith and Dimon's yard in New York he fell under the brilliant influence of John Willis Griffiths, then one of their draftsmen but later to pioneer the true clipper design. These two dreamed and discussed how they could improve the packets on whose construction they were employed. After this McKay worked a while in the Brooklyn Navy Yard and then found a job in Newburyport, Massachusetts. There, in due course, he founded the firm of Currier and McKay, which had but a short existence before the partners agreed to separate. It was succeeded by a new firm, McKay and Pickett, whose first packet was the *St. George,* pioneer of the Red Cross Line, a successful ship of 845 tons burden.

But McKay's reputation was really made when he completed the packet *John R. Skiddy,* of 930 tons, in 1844. Her owners were Messrs. William and Francis Skiddy of New York, both of them qualified master mariners, and Captain William soon showed what he could do with her by making her one of the most popular ships in the trade.

About this time Mr. Enoch Train, who had gained a reputation as a shipowner between Boston and South America, with only an occasional voyage across the Atlantic with the *Cairo, St. Patrick* and *Dorchester,* decided to go in for the regular packet trade and Mr. Dennis Condry, a shipowner who had noticed the sterling qualities of Donald McKay when he was only a shipyard foreman, met him and persuaded him to go to the young shipbuilder. Rather doubtfully Mr. Train paid a visit to the yard at Newburyport, but in an hour he had left a contract for McKay to build the first ship of what was afterwards to be the White Diamond Line.

She was the *Joshua Bates,* a ship of 620 tons burden, and was far in advance of any other packet of her day. Her design and construction so impressed Mr. Train that he immediately persuaded Donald McKay to leave Newburyport with its limited opportunities and go with him to Boston, where he offered him every help and facility.

It was very largely on the sterling qualities of the *Joshua Bates* that the White Diamond Line founded its prosperity. Naturally enough, she had big steerage accommodation, and it was for this that McKay built her with full lines, but at the same time he worked for speed. She and all the other ships of Train's Line carried a large "T" on their foresails while their house flag was a red flag with a white diamond.

The first ship which McKay built in his new East Boston shipyard was the *Washington Irving* for Train. She was laid down in 1845, when conditions on the Western Ocean were very slack and many people doubted whether Train was wise to build such a fine ship. Her burden was 751, not large for a packet, but she was excellently fitted and well built, having rather finer lines than had hitherto been attempted, and like the *Joshua Bates* she was an unqualified success.

Enoch Train was one of the first packet owners to realize the supreme importance of speed on the North Atlantic in order to compete with the steamers; his predecessors and rivals who had built fast ships had merely done so to get more fares into the year. Donald McKay's first two ships, the *Joshua Bates* and the *Washington Irving* were faster than most, but they were not designed essentially for speed. When Train engaged McKay to build a third ship, the *Anglo-Saxon,* of 894 tons burden, he wanted her big and he insisted that she should be able to outsail any packet running out of New York. Money was not stinted on her construction and decoration, and on dimensions 147 on the keel by 35 feet 3 inches by 21 feet depth of hold, McKay turned out a really wonderful ship. One of her great features was that quite a lot of attention was paid to the comfort of the steerage passengers, a feature that had not been considered worth while before. Although she only lasted a year, being lost off Cape Sable in the winter of 1846, the *Anglo-Saxon* made a name for herself while she was running and decided Train to stick to McKay for his designs.

In the mean time Donald McKay had obtained a contract to build a clipper for his old client Skiddy of New York, and in September, 1846, launched the *New World* of no less than 1,404 tons burden, the first three-decked merchantman to be built in the United States and the wonder ship of her time. She was put in command of Captain William Skiddy but before she was ready for sea her owners received a very profitable offer from Messrs. Grinnell, Minturn and Company of the Swallow Tail Line and she was transferred to them, her success getting Donald McKay another valuable client. It was not until 1849 that William H. Webb of New York built the *Guy Mannering,* 1,419 tons, and the *Albert Gallatin,* 1,435, to compare with her in size.

In spite of their disadvantages, it must be remembered that the sailing ships had one big advantage in the fact that the laymen still regarded them as safer. It was in the spring of 1841 that the steamer suffered its first very severe setback in public opinion through the loss of the *President.* What happened to her will never be known; she should have arrived from New York in April at a time when there was very bad weather in the Atlantic and an unusual quantity of ice was reported. What was probably the ill-fated *President,* for there were very few two-funneled ships afloat in those days, was sighted on the twenty-third of April in mid-Atlantic by a Portuguese brig. She was proceeding under sail, the paddles were not working and no smoke was issuing from her funnels. The brig approached within three or four miles of her, but she made no attempt to hail and apparently the Portuguese did not see anything which made him presume she was disabled; the paddles not being in action was nothing unusual. When the ship became overdue, however, this report was the key to the search carried out by British and Portuguese men-of-war. But no sign of the ship was ever found, not even the smallest piece of wreckage that might indicate her fate.

The first loss of the Cunard Company, and the only one for many years afterwards, was the wreck of the *Columbia* on Cape Sable. The ship left her bones there, but all hands were safely landed in addition to the mails and the greater part of the passengers' personal luggage. Her loss meant unbalancing the service and she was immediately replaced by the *Hibernia,* a rather larger ship of precisely the same general type which also came from Steele's yard and which had a knot more speed, which could only be obtained by increasing the coal consumption from thirty-eight tons per day to forty-four. The design proved so successful that it was repeated two years later in the *Cambria,* which was always a remarkably speedy ship. These ships were originally barque-rigged, like the first quartette, but the mizzen was soon suppressed and they spent most of their lives as brigs which greatly improved the balance of their appearance; the mizzen always looked rather mean and was stepped too far aft to be sightly.

The Cunard Line had every reason to improve its fleet, for there were rivals coming who had to be taken very seriously. The first of these was the *Great Britain* which has a position of her own in the history of the North Atlantic. As soon as Cunard's venture was published, the Great Western Steamship Company decided to reinforce the *Great Western* with a far finer ship and accordingly commissioned I. K. Brunel to design her. He was a man of daring ideas but the *Great Britain,* as his ship was subsequently renamed, was perhaps the finest of them all. To begin with, he insisted that it would be quite impossible to build a really satisfactory ship of the size demanded by the company unless he substituted iron for wood, and after a good deal of discussion he got his way. He produced a plan for a very large paddle ship but while she was still in the very early stages of construction he was so struck by the success of the little screw steamer *Archimedes* that he changed the design at once and made her the first iron screw steamer.

It was considered that for a ship of her size it would not be safe to build on a slip, and accordingly she was laid down in a dry dock at Bristol in 1839. In July, 1843, it was decided to float her into the river, but it was then discovered that she had been built without sufficiently careful examination of the entrance and that it was quite impossible to move her. She therefore had to remain, fitting out leisurely, until December, 1844, while the dock entrance was being altered.

Considering the average size of Atlantic liners at that time she certainly deserved the name *Mammoth* which it was originally intended that she should have. Her dimensions were 322 feet by 51 beam by 32.6 feet depth of hold; her tonnage was 3,448 by the old measurement. Brunel was a great believer in strong ships and he made her the strongest ever put afloat. In addition to the weight of her scantlings she was given five water-tight bulkheads which were then a novelty in Europe. When first she went to sea she had six masts, and as there were no official names for them they were called after the days of the week, beginning with Monday; for it was very truly remarked that there was no Sunday at sea in those days.

Her engine, which worked at a pressure of five pounds to the square inch, consisted of four direct-acting cylinders with a diameter of eighty-eight inches and a stroke of seventy-two, driving an overhead crank shaft at eighteen revolutions per minute. Chain gearing increased this to fifty-three revolutions at the screw and she proved herself capable of making twelve knots on trial.

She was ready for sea in January, 1845, and steamed to London at an average speed of nine and one-half knots, returning to Liverpool to load for New York in July. She sailed on the twenty-sixth, having about sixty passengers and over eight hundred tons of cargo at the highest rates. Both westward and eastward she steamed well, her best day's run being 287 miles, and she completely confounded the critics who maintained that an iron ship must firstly be a bad sea boat and secondly must foul so quickly that her speed would be pulled right down. Most of her early troubles were connected with the six-bladed propeller with which she was originally fitted; when this was changed for a four-bladed one she did very much better.

Like the *Arizona* at a later date, the *Great Britain* owed a considerable measure of her acknowledged success as a ship to an accident. In 1846, hopelessly out of her course, she went ashore in Dundrum Bay, and the critics who were always condemning her prophesied that she would break up at once. Even her warmest advocates did not dream that her hull would stand the hammering that it had to put up with all the winter, its only protection a breakwater of fagots round her stern. Finally, after nearly ten months ashore, she was towed off by the Navy and taken to Liverpool. When she was surveyed, the Great Western Company decided that they could not afford the repairs, and although she had cost over one hundred thousand pounds they sold her to Gibbs Bright and Company, one of the principal lines on the Australian trade, for twenty-four thousand pounds. After that she only made occasional visits to the North Atlantic, but she proved herself a wonderful ship with various changes of machinery and rig, finishing her active days as a sailing ship in 1886, when she put into the Falkland Islands damaged and is still there as a wool and coal hulk.

The first break in the original management of the Cunard Line was in 1845, when Mr. David MacIver died and the Liverpool affairs of the company which he had controlled were put into the hands of his brother, Mr. Charles MacIver, who retained them for nearly thirty-five years before he in his turn retired and was succeeded by his sons.

The year 1845 saw another very noteworthy steamer put into service, for although the experiment was not a success it was interesting and well worth the making. For one thing, it showed that there were many American shipping men who, while proud of their sailing tonnage, saw that steam must inevitably come.

For the first few years of the Cunard Company's existence the Americans were apt to scoff at the "tea kettles" as they called them, and to say that such contraptions, with their slow speed and anything but perfect engines, could not survive in the long run against the wonderful clipper packets which they rightly claimed to be the finest sailing vessels in the world. Given their wind, these sailing ships could easily sail rings round any of the Cunarders and did not fail to do so whenever the opportunity offered, but it has already been shown that their average could not compare with that of even the earliest steamers, far less the improved ones.

But it was only natural that the Americans should hesitate to abandon the policy of sailing-ship construction on which they had built such a reputation and so they tried an experiment that has been attempted time and time again in similar circumstances, but which has always proved unsuccessful. In 1845 they placed on service the auxiliary steamer *Massachusetts,* a fully rigged wooden ship of only 751 tons, with a wonderfully compact little engine of 170 horse power driving a folding screw. Her owners shared the experience of everybody who has tried auxiliary merchantmen, and found that they were neither one thing nor the other and most unsatisfactory in both rôles. They were only too glad when the United States Government bought the *Massachusetts* as a man-of-war and put her to very good use during the Mexican War of 1847.

Failure as she was, the *Massachusetts* made a popular name for herself and interested the public sufficiently to give American steam shipping a chance. In those days of high costs, particularly in fuel, it could not pay any owner to keep a steamer on active service all the year round, and as that was essential to the success of the service, success could only be obtained by generous State payments for the carriage of mails, which depended to a great extent on public interest. But public interest in the United States was centered on the packets and refused to see the real necessity of a regular service such as only steam could supply. So precious years were lost, and it was not until the *Massachusetts* showed that American steamers were at least possible in 1845 that Senator Thomas Butler King, of Georgia, contrived to arouse any real enthusiasm for transatlantic steam navigation. His suggestion was that the United States Government should set aside a million dollars per annum for the carriage of mails by the fastest and most regular means available, provided it was under the Stars and Stripes.

In 1845 his patient work had a result, and Congress passed an Act which permitted the United States Postmaster General to make a contract with the owners of American ships, steamships preferred, for the carriage of the American mail to England and the Continent. The terms suggested were generous, a State payment of one hundred thousand dollars per year for every ship in the service that could do the round voyage from New York to Bremen, with a call at Cowes both ways, once every two months. If the ship were slower than this, the subsidy was to be seventy-five thousand dollars, while the contract called for a minimum tonnage of fourteen hundred, a minimum horse power of one thousand, and a minimum speed equal to that of the Cunarders. It was a tempting offer, but no shipowner saw his way to accept it.

This act was followed in 1847 by a second measure, which authorized the United States Navy to build four steam men-of-war and which offered assistance in the construction of mail steamers for services to the West Indies and Central America and to Europe. The minimum fleet proposed for the European service was three steamers. The Ocean Steamship Company, which had already been trying to arrange a transatlantic service, contrived to fit in its demands with the Government's suggestions sufficiently to arrange a compromise. But it could only see its way to build two ships to begin with, the *Washington* and *Hermann,* so that it was not able to take full advantage of the aid offered. The annual subsidy was accepted, but after a very short trial it was changed to one on a voyage basis.

Senator King by that time had ceased to be a solitary fighter for his cause; several other American business men were almost equally enthusiastic. Enquiries were made with the idea of starting services to all sorts of Continental ports — Antwerp, Rotterdam, Havre, Bordeaux and Lisbon — but the financial problem proved a very heavy one and it was not until 1846 that Edward Mills came forward with the practical suggestion of a regular steamship service in return for a subsidy of two hundred thousand dollars per annum. And he linked with it the name of a port which had been scarcely considerer for the purpose, Colonel D. A. Mann of the United States Consular Service having persuaded him that Bremen would serve his purpose better than any other place. He agreed to build four steamers at least equal to the Cunarders then being used and to run a mail service for five years, commencing from the first of March, 1847. He had the option of running every other sailing to Havre instead of Bremen and was allowed until March, 1848, to get his ideas into full running order.

Mills was not a capitalist, so he obtained Congressional permission to found the Ocean Steam Navigation Company with himself as president. One hundred thousand dollars was the capital spoken of, and with permission to increase it to a million if necessary, but the money was very slow in coming in and it appeared as though the whole scheme would fall to the ground until business interests in Bremen, realizing what an advantage the service would be to their port, succeeded in raising three hundred thousand dollars in Germany, mostly from the German State governments which were likely to benefit, at six per cent. Mills was bought out for fifty thousand dollars but in the meantime the steamers *Washington* and *Hermann* had been ordered of Westervelt and McKay at a cost of five hundred seventy-nine thousand dollars. Including the money raised in Germany, only $599,200 had been forthcoming so that the contracts for the second pair of ships were cancelled. The right to run a United States mail service to Havre was sold to a new company for two hundred thousand dollars, but the Ocean Company had to accept script, which proved to be worth not one third of that sum.

The ships differed slightly in detail, the *Washington* having a tonnage of 1,640 and the *Hermann* of 1,734. But they were alike in that they were really exceptionally heavily built wooden sailing ships, peculiarly clumsy and ugly when compared with the beautiful clipper packets, fitted with paddle engines by the Novelty Iron Works, side lever machines with six-foot cylinders and a ten-foot stroke. They were very fully rigged and were comfortable and good seaboats, but they were not as fast as the contemporary Cunarders, and eleven days was the best they could manage, even after a few voyages had shown that the design was faulty in that the boiler power was too small and the paddles dipped far too deeply into the water. They maintained a fortnightly service to Bremen, touching at Cowes, and while it had the mail contract, the company was tolerably prosperous, paying dividends ranging from seven to ten per cent. and building up a fair reserve for new construction.

When the *Washington* was put in service in June she marked a further milestone in Atlantic steam navigation, for in addition to her one hundred and twelve first-class passengers she had accommodation for seventy second class, which the British lines had ignored and left to the sailing packets. The Cunard fare at that time was $190 for the first class; the *Washington* fixed hers at $120 eastward and $150 westward, and also cut the freight rates for the first-class goods very considerably.

In consequence of the running of the steamers on the Ocean Line, handicapped as they were, the Cunard Line saw the necessity of a direct service to New York, which was obviously becoming the base of American business. The British Post-office authorities quite saw this point of view, which suited their convenience excellently, and accordingly came to a new agreement with the line to maintain a weekly service from Liverpool. running direct to New York one week and to Boston by way of Halifax the next. The subsidy for this service was one hundred fifty-six thousand pounds per annum.

This weekly mail service forced the line to build more tonnage, and accordingly the *America, Niagara, Canada* and *Europa* were added to the fleet. In design they were only an adaptation of their predecessors, with a gross tonnage of about 1,825 and engines of 2,000 horse power giving them a steady 10½ knots, but innumerable minor improvements were incorporated and they were all excellent performers. The two great rivals were the *Canada* and the *Europa,* the former in particular making herself very popular on the passenger service under the command of Captain Harrison and being very unlucky in never contriving to get the Blue Ribbon for which she was constantly striving, although her average was excellent.

In spite of the improvement in the times kept by the Cunard Liners when they had mastered the problem of coal supply, the packets were quite capable of giving them a run for their money when it suited them. In March, 1848, the *Ocean Monarch* left Boston four hours after the *Britannia* and arrived at Liverpool on the same tide, fifteen days later.

It was not only on account of its regular service that the Cunard Line found favor with the public: its reputation for safety at a time when the steamers were still regarded with a certain amount of fear was a great asset. It was always particularly jealous of this reputation for safety and some time before navigation lights became in any way compulsory, or were even officially encouraged, the ships of the line worked on a system of their own. This system was introduced in 1848 — a green light on the starboard side, a red on the port and a white at the masthead — and proved so satisfactory that it was the one selected when the Board of Trade finally made some effort to introduce a uniform plan. Even then the opposition of vested interests made it impossible to render the carrying of lights compulsory. It was not compulsory, and nothing could be further from the minds of the officials than thus to interfere with the liberty of the shipowner, but if a ship which carried lights was involved in a collision with one which did not, the latter was automatically responsible, no matter what the other circumstances of the case might be.

The New York and Havre Steam Navigation Company got properly under way two years after the Ocean Line with which its original scheme was connected, in 1849. It carried the mails between New York and Havre, with the same call at Cowes as the Ocean Line. The service was a fortnightly one and the subsidy was one hundred fifty thousand dollars per annum, or considerably less than the Bremen Line. The two ships which started to run, the *Franklin* and the *Humboldt,* were built by Westervelt and McKay, both paddle steamers but not by any means sisters. They were capable of doing the eastward passage in an average of twelve days ten hours and the westward in twelve days sixteen hours.

After a few years the company was unlucky, the *Humboldt* being wrecked on December 5, 1853, at the entrance to Halifax Harbor and the *Franklin* foundering off Montauk Point in the following July. Many thought that these two disasters would finish the company's activities, but they chartered tonnage while they were building new ships.

There was obviously good money in regular services between the Continent and America, no matter whether they were sail or steam, in those days of an apparently unlimited flood of emigration to the West. In 1847, therefore, among other concerns which soon disappeared, there was started in a very modest way a company which was destined to become one of the most important in the world, the Hamburg American Line, whose originator was Herr August Bolten. He had little difficulty in persuading other Hamburg merchants to join him in the idea of a sailing-ship service to New York, the capital required being only four hundred fifty thousand marks. The first ship was the *Deutschland,* which was designed as a carrier rather than for speed but which contrived to make her maiden passage from Hamburg in forty days. In 1848 she was reinforced by two other sailing ships.

The original fleet was not ambitious, the three only costing £12,250 all told. In view of their small capital this was considered quite enough to spend on material. The *Deutschland* was the biggest of the trio, having a gross tonnage of seven hundred with accommodation for twenty passengers in her tiny cabin and two hundred in the 'tween decks.

The repeal of the British Navigation Act in 1849, an action taken under the impression that the United States Government would follow suit, and open the coasting trade, offered the Cunard Company another opportunity of which they immediately took advantage. It was then possible to carry French goods from Havre to a British port for transhipment either to America or the Mediterranean. Facilities were at once provided for this new trade, which gave useful employment to quite a number of small ships which gave first commands to some of the most famous Western Ocean captains and which proved invaluable feeders to the liners. The best known of these little ships was the *British Queen,* built the year the Act was repealed and not to be confused with other ships of the name.

Game as they were, the efforts of the Ocean Steamship Company did not satisfy keen Americans who wished to see their flag in the same position in steam it had occupied in sail. They gradually forced the hand of the American authorities until they announced that they were willing to listen to any suggestion.

Then Mr. E. K. Collins came to the front. He was the head of the Dramatic Line of sailing packets and might have been forgiven for placing all his confidence in sail. But he believed that steam had come to stay and suggested to the authorities at Washington that he should be allowed to put up a really big competition with the Cunard Line with State assistance. His backers were Messrs. James and Stewart Brown, W. S. Wetmore and Elisha Riggs, all men of substance and reputation. His suggestion was to build five first-class wooden steamers of about two thousand tons apiece, which should perform twenty round voyages per annum. For this he required a subsidy of $19,250 per voyage. It was no use doing the thing half-heartedly and he planned to build most elaborate ships, far better fitted than the contemporary Cunarders. When the estimates were finally passed, however, it was found that five were too expensive, so that the plan was changed to four sister ships, which subsequently came out as the *Arctic, Baltic, Atlantic,* and *Pacific*. Officially they were the New York and Liverpool United States Mail Steamship Company, but nobody ever thought of using that name. It was always the Collins Line.

Even the dropping of the fifth ship did not square the accounts, for it soon became obvious that the estimated cost of the ships would be very greatly exceeded. It has to be admitted that Mr. Collins' enthusiasm ran away with him, and by the time he had finished the plans the ships were practically three thousand tons apiece instead of the two thousand that had been planned. But it must be remembered that the idea of the American authorities was not only to run a mail service, but to restore the prestige of the Stars and Stripes on one of the most important trade routes, and in this the Collins Line would certainly succeed. They were the finest ships afloat and when their cost was discussed Senator Bayard and others pointed out that this was well worth paying for. The result was that the government lent the line money to complete the ships and before they started running agreed to increase the subsidy to thirty-three thousand dollars per voyage, with a maximum of eight hundred and fifty-eight thousand dollars per annum, provided the company maintained a fortnightly schedule.

The *Atlantic* and *Arctic* were built by William H. Brown of New York, while Brown and Bell built the *Pacific* and *Baltic*. George Steers, whose liner designs were as successful as those of his yachts, was responsible for their lines, and although with the straight stem that was then entirely novel they were not at all pleasing to the eye, there is no denying that for their time they were magnificent ships. Their length along the main deck was 282 feet, their beam 45, and their depth of hold 24. They were wooden built, as were most American ships of that day.

Their machinery was very powerful, too powerful for their wooden hulls, and the money spent in repairs when they were wracked to pieces by the machinery was one of the company's greatest troubles. It consisted of side lever engines with balanced poppet valves. In the *Arctic* and *Baltic* the cylinders were ninety-six inches in diameter by ten feet stroke; in the *Atlantic* and *Pacific* ninety-five inches in diameter and nine feet stroke. In each case the boiler installation was the same, four vertical tubular boilers.

While such progress had been made in the New York and Boston services, the run across the Atlantic to the St. Lawrence was still maintained by small sailing ships, principally under the Allan house flag. The brigs and brigantines had disappeared and had been replaced by full-rigged ships, most of them built either in Canada or on the Clyde, running up to six or seven hundred tons but most of them very much smaller. Conditions on board them were rough, but they were well managed and, backed by numerous haphazard sailings during the season, they gave Canada all the facilities that her development really required. Halifax being the port of call for so many American liners, most first-class passengers entered Canada by that route but the emigrants nearly all went up the St. Lawrence.

# *Chapter III: The Fifties*

The eighteen-fifties make a most interesting decade in the history of Atlantic shipping, for they saw the steamer making real headway against the sailing ship, principally because iron construction and screw propulsion obtained their recognition. Also it was a period of cutthroat competition which, in addition to providing excitement for those who do not stand to lose dividends by it, invariably means plenty of interesting technical development. This competition brought into being the long rivalry for the Atlantic Blue Ribbon.

The decade opened with immediate prospects of the keenest competition between the steamship companies on the North Atlantic, — competition far keener, even, than that of the old sailing packets. For ten years the Cunard Line had been showing that a regular Atlantic steam service was practical, and the steady improvement of its material had gone a long way towards overcoming the disadvantages. It was only natural that the Americans should want to share in this traffic, for in those days the whole of the New England seaboard was very keenly interested in the sea and the distribution of the financial interests in the old packet companies was extraordinarily wide. These packet companies were still doing well, but they were gradually being forced into the immigrant trade only and American business men were quite wise enough to see the tendency.

They also saw that in steam navigation they would be working at a very considerable disadvantage in competition with the British, for although the present position had not been reached, their constructional and running costs were already very much higher. They realized this disadvantage, but while they had the financial support of the United States Government and no lack of shareholders they were content to trust to their ability to provide something bigger, better and far more luxurious than the Cunarders, and so to gain public favor. The success of their calculations depended entirely on the conditions on which they relied being maintained, which in turn depended on the political trend of the Republic.

So the Collins Line started operations as has already been described, but scarcely had this competition settled down than it was made more acute by the establishment of another first-class company, the Liverpool, New York and Philadelphia Steamship Company, which was more usually known as the Inman Line and which, by introducing entirely new ideas in the Atlantic service, had a big influence on its history and maintained a proud position on the Atlantic Ferry for many years — as long indeed as the founder of the business lived and imprinted his personality on its affairs.

William Inman, a Leicester man, was only twenty-five years of age when he started the line that bore his name, but in a short business career he had already raised himself from the position of junior clerk in the office of Richardson Brothers, the sailing-packet managers of Liverpool, to be a partner. He was a veritable human dynamo for energy, and in addition he had the inestimable advantage of being able to appreciate the other person's point of view. This gave him a big advantage in the competition for passenger favor, for until then most of the steamship owners had been content to bring about their improvements on the technical side, leaving potential passengers to appreciate these improvements or to stay away.

Inman, on the other hand, believed that competition was going to be so strong that the favor of the passenger was the most important thing, and in this he luckily had the support of his wife. They were willing to travel as emigrants on more than one occasion in order to find out for themselves just what the steerage passenger wanted to make him comfortable, and what points in the existing organization could be improved. Thus they hit at the very foundation of the sailing packets' business by making the steamer a far more comfortable emigrant carrier, and on this a very large part of the prosperity of the Inman Line was founded. But undoubtedly it also owed a lot to the fact that Inman had a very full appreciation of the latest technical development. One or two iron screw steamers had been put in service, but no effort had been made to organize a fleet on those lines.

David Tod, a partner in the Glasgow shipbuilding firm of Tod and McGregor, had the idea that such a ship would pay and accordingly built as a speculation the steamer *City of Glasgow* with which he intended to open a new service between the Broomielaw in Glasgow and New York. Her dimensions were 227 feet in length by 32 beam, giving her a tonnage of 1,610 by builders' measurement, while she had two beam engines totaling 350 nominal horse power geared to a single shaft with a propeller 12 feet in diameter by 18 feet pitch. The arrangement was peculiar. The engines were on one side of the ship and a beam crossed the keel line. On the other side of the ship was gearing which reduced the engine speed three to one. With her three flue boilers, working up to ten pounds' pressure, the machinery was heavy for its type, four hundred and twenty-eight tons, and with the coal it accounted for forty-two per cent of her displacement. In addition she had the usual barque rig of the period and was as sightly and graceful as Clyde-built ships of that time always were.

She had accommodation for fifty-two passengers in the first class, eighty-five in the second and four hundred in the steerage, third-class passengers not having before been carried in steam on account of the expense. The main deck, two hundred and thirty-seven feet long, was clear and flanked on either side by the staterooms, there being a sixteen-foot width of saloon space down the center, while the headroom of seven feet was regarded as being generous. Only two of the first-class cabins were four-berth, the others having two berths only, which was another innovation. The second-class rooms had four and eight berths, while the steerage space was of course open.

As her design was to have such an influence on the Atlantic, a few words on Mr. David Tod, who was largely responsible for it, are appropriate. He served his time in a millwright's shop. Then he went to David Napier's works and, getting faith in the steamer from what he saw there, he gained sea experiences by serving as engineer in the little *Rob Roy,* the pioneer steam packet. His ambition and ability advanced him, and he eventually gained a position which let him exercise his belief in the screw propeller for big ships. Unfortunately he only lived to see the first part of the triumph of his ideas, for he died in 1859.

The *City of Glasgow* had made only two or three trips across the Atlantic when Inman persuaded his partners to purchase her as the nucleus of a new fleet. After a certain amount of demur they agreed and she was advertised to take her maiden sailing to Philadelphia, not then covered by a direct steamship service from Europe, on the 11th of December, 1850. For the first voyage or two she did not carry steerage passengers — that was the one point on which his partners would not give in to Inman's importunities — and the fares westward were twenty-two guineas and thirteen guineas, eastward one hundred dollars and sixty. She also had stowage for about twelve hundred tons of cargo which proved most profitable. Inman's calculations, in fact, were so sound that the Board soon gave way to him on the matter of third-class passengers.

The prefix *City* to the names of the company's ships, which was maintained until the end, thus came about quite accidentally, but the *City of Glasgow* did so well that they determined to stick to the distinction and the second ship of the fleet, hailing from the same yard, was christened *City of Manchester*. She was a very much bigger vessel, having a tonnage of 2,125, which permitted improved accommodation, but her engines were practically the same as those of the pioneer.

As far as the sailing ships on the Atlantic are concerned, the decade started with a very radical change, as regards the American ships at least. Gold had been discovered in San Francisco and the protected trade around the Horn from the Eastern States, into which no foreign-built ship could venture, offered very much greater opportunities than the passage across the Atlantic. On the one were emigrants of the poorest description, trying their luck in a new land because they had been unable to succeed in Europe; on the other was a gold-fever, persuading men of substance and position to give up everything that they had worked for in the East. The one was a trade in which the competition to be encountered was very strictly limited and a reputation for speed counted for everything; the other was one in which the steam competition of the whole of Europe had to be overcome as well as that of the established American lines, and where regularity of service made much more impression than record passages.

The prosperity of the West hastened the end of the sailing packets on the Western Ocean, and also made it practically impossible to follow their fortunes. Ships which had made a reputation between New York and Liverpool were taken off and run around the Horn to California; extreme clippers which had been designed entirely for the Californian service filled in odd moments by racing across the Atlantic for a cargo of emigrants. The two services became hopelessly intermixed, inferior tonnage crept in to try to get the transportation of a few emigrants from the greedy steamers, and the doings of the packets were lost in the dazzling glamour of the Californian clippers.

One of the greatest handicaps to the Canadian trade, which had been the principal factor in keeping the steamship owners away from the St. Lawrence, was the state of the river. It was appallingly dangerous to all sorts of shipping, and steamers were too valuable to be risked in this way. The charts were very bad indeed, nothing having been done to improve on the survey which Captain Cook made during Wolf's expedition, and the authorities were criminally careless in the maintenance of the navigation marks and pilotage service. It was not until 1850 that the Canadian authorities, shaken into action at last by the progress made on the New York and Boston routes, set to work to improve matters and to remove the worst of the obstructions in the river. But it was many years before the service was more than an adventure on which few steamship owners were willing to embark.

For that reason the Canadian run still continued to attract a very limited business, but by maintaining their own pilots and only employing men who knew the St. Lawrence well, the Allan family found it very profitable and continued to build bigger and better ships. By 1850 and the following years, although not yet experimenting with steam, they built some very fine sailing vessels running up to nearly one thousand tons burden and providing a very greatly improved standard of comfort for their passengers, although not yet anything like that of the Atlantic steamers.

At this period the emigrant fare from Liverpool to Quebec was only £3. 5. 0, for which the company were bound to provide transportation, water and firing, but nothing else. On grounds of humanity the ships carried a good supply of biscuit, but they were not bound to do even this.

The passengers of the Allen ships were mostly Scotsmen who took a rather longer view of things than most emigrants and who usually embarked fairly well prepared for the rigors of the voyage. Even so, it was very easy to miscalculate in a sailing ship and emigration was not a thing that could be lightly undertaken.

The carpenter of these ships was not only responsible for building the accommodation into the hull at the beginning of each voyage, but also for the water supply and for precautions against fire. These were duties which naturally fell to his lot with a limited crew, but it is difficult to understand the reason why the carpenter was given the responsibility of all the dental duties of the ship, unless it was that in those days the pulling out of nails and teeth were regarded as kindred occupations.

Returning to the New York service, not everybody shared the enthusiasm which Inman and Tod had for the screw propeller and the next ship to be added to the Ferry was an American wooden paddler of somewhat similar design as the Collins liners, Fox and Livingston's *Humboldt*, which was launched in October, 1850. Originally she was intended for the Bremen service but before she was completed her owners transferred her to the New York and Havre Steam Navigation Company, another of their concerns, to run alongside the *Franklin*. Her dimensions were 292 by 40 by 27 depth of hold, which gave her a gross tonnage of 2,850. In appearance she was very much like the Collins ships, with a straight stem, flush deck and rather ugly stern, rigged as a three-masted schooner with standing gaffs and topsail yards on the foremost only, her single funnel being well forward of the paddle boxes. Unfortunately she was not long enough in service really to prove her virtues, for she was only commissioned in the spring of 1851 and within two years was wrecked on the Sisters' Rock, near Halifax. She bumped heavily in the swell and her engines fell bodily through the bottom of the ship, putting an end to any hope of saving her or her cargo which was valued at £800,000. All hands were, however, saved by good seamanship.

In one way the disaster was a blessing in disguise, for it put an end to haphazard pilotage methods on the North Atlantic and helped to pave the way to a properly qualified and disciplined service. It came as a shock to the general public to learn that it was possible for an Atlantic liner to be piloted into a strange port by a local fisherman who volunteered to do the job for a few dollars, but who had absolutely no qualifications and had never handled a big ship.

What might have been even more formidable competition was started in 1850 — the experiment of making Galway a terminal port for Atlantic steamers, which had long been the dream of Irish Nationalists. Its chances could scarcely be described as rosy from the start, for a committee was appointed to go into the question of an Irish terminal — not necessarily Galway — and reported against it. Undeterred by this report and within a few weeks of its publication, the Midland Great Western Railway and the inhabitants of the town and county of Galway subscribed about one thousand pounds towards the cost of the experiment and secured the charter of the little paddle steamer *Viceroy,* a ship designed for the Irish Channel service with a tonnage of only eight hundred burden and engines of three hundred and fifty horse power. To take her across the Atlantic she had to ship four hundred tons of coal, which brought her far deeper down into the water than would be permitted by the Board of Trade nowadays.

Yet she was described as a "great steamer" and the inhabitants of Galway welcomed her accordingly by illuminating the town and by letting off fireworks for the greater part of the night before her departure. It was not possible to get her alongside the steps, so that as soon as the mail train arrived from Dublin, the local coastguards lent a friendly hand and got the mail on board in their boats. When she was finally under way the whole coastline blazed with bonfires and artillery salutes were fired at every opportunity.

The voyage ended in disaster, for on her return passage, which was to be by way of Halifax, she encountered fog almost immediately after leaving Sandy Hook. She was picking her way through the fog when she struck with sufficient force to cause her to leak enough to stop her engines. When the fog cleared it was seen that she was on Sag Island near Cape Sable, and in spite of the assistance offered by Government steamers, it was soon obvious that she was doomed. The passengers and the greater part of their property were saved, but the ship herself was sold to the firewood merchants as she lay.

Meanwhile Irish American interests were working to the same end in the United States. These efforts seemed crowned with success in 1851, for the American steamer *North America*, which had been running between New York and Chagres, was chartered and booked to leave New York for Galway on the seventeenth of June. As that date approached, the sailing was postponed until the twenty-fourth, but that attracted no particular attention as there was nothing unusual in such an occurrence. On that day, however, when all the passengers were on board and everything ready for sailing, it was suddenly announced that the ship had been sold for a good price to Commodore Vanderbilt, who was making huge profits out of his service from New York to Chagres in connection with the gold rush to California, and who wanted this ship to take the Pacific end of the service. The disappointed passengers were unceremoniously bundled off the ship but the Collins liner *Pacific* took them on to Liverpool, abandoning all idea of the Galway call. That ended the scheme for the moment.

The *Africa* and *Asia,* brought out by the Cunard Line in 1850, were a very considerable improvement on their predecessors, particularly in the matter of speed. With a gross tonnage of 2,226 they had engines of nearly 3,000 indicated horse power which gave them a steady 12¼ knots at sea but which consumed a colossal quantity of coal in doing so, no less than 3.92 pounds per indicated horse power per hour. The *Asia* was appreciably the faster ship of the two and under Captain Judkins soon logged a record in both directions — nine days fourteen hours on her maiden voyage from Boston to Liverpool and later with a time of ten days eleven hours thirty minutes from Liverpool to New York direct.

The *Africa* was otherwise an exact sister, and although they were certainly not up to the standard of the Collins liners they were the best material that had yet run to Boston and they were appreciated in the New England port accordingly. The *Africa* was first under the command of Captain Byrie, and like her sister she was fitted to carry guns and to be used as a man-of-war in an emergency.

To make room for them the *Caledonia* and *Hibernia* were sold to the Spanish Government for conversion into men-of-war in 1850, the pioneer *Britannia* and the *Acadia* having been disposed of to Germany for a similar purpose in the previous year.

Against these big steamers the sailing packets were still being built, although the tendency was to make them of rather heavier construction and greater carrying capacity than the usual type of clipper. In 1850, Grinnell Minturn and Company of Boston built the *Cornelius Grinnell,* a ship 180 feet long on the deck with a 38-foot beam and 23 feet 6 inches depth of hold, giving her a burden of about 1,100 tons. She was put in service from London to New York and was designed to carry a very considerable cargo in addition to her emigrants.

Another was the *Daniel Webster,* which was also designed on the realization that the increasing competition of the steamers had forced the sailing ship to aim at a higher carrying capacity than was possible in the extreme clippers, and her designers certainly evolved a ship which was very much more comfortable to her travelers than the flyers which made such names for themselves. She was built in 1851 by Donald McKay and like all his ships she attracted great attention when she came out in spite of the fact that just at that time many noteworthy steamers were taking the water.

She was built to replace the *Ocean Monarch* and was not unlike her in lines, having an over-all length of 186 and a beam of 40 feet, the tonnage being round about 1,500.

Figurehead and quarters were elaborately carved, and she was a beautiful ship to look at, while below deck she had very much greater comfort than was usual in a sailing packet and she really was a masterpiece of McKay's art. Her long poop ran forward nearly to the main hatch, while the forecastle and midship house, in one, came nearly as far aft. The two were connected by short gangways. These erections made the working of the ship very much simpler and more convenient.

The first-class cabin was right aft, lit by a skylight and four large stern windows, while on either side it was flanked by staterooms. Immediately forward of the first-class saloon, and divided only by a bulkhead, was the second-class saloon, again flanked by staterooms, with eight berths in each. Forward of the well there was the ice house, two hospitals, the doctor's room, and various storerooms, in addition to the galleys for all three classes. On either side of these rooms, against the side of the ship, was more passenger accommodation, while on the lower deck were the quarters of the steerage and second class, as distinguished from the superior first-class passengers.

Instead of the long wooden troughs into which as many passengers were packed as could possibly be accommodated, the *Daniel Webster* was fitted with quite good iron-framed berths on the lower deck and her accommodation obviously owed something to Mr. Inman's published plans. Below the lower deck were the holds, but these were designed in such a way that there would be little or no difficulty in fitting an additional steerage deck, should the demand justify it.

Still another fine packet, which contrived almost entirely to resist the blandishments of the Californian trade, was the famous *Racer,* built at Newburyport in 1851, a beautiful clipper of 1,669 tons without the very extreme lines that were then coming into fashion. She was fitted as well as any sailing ship afloat, complete with ice-house, hospital and all the comforts and conveniences that the Atlantic traveler could demand in sail. When the Red Cross Line took her over, they were satisfied that they had a ship which was as fine as anything afloat and did not cavil at the bill for one hundred and twenty thousand dollars.

The tendency of the trade is shown by a record of her voyages. On her first passage she took 80 passengers eastwards and returned with 769. Two months after her arrival she again took a handful only to Europe, but came back with 758. Then came the passage, made at just the right time when excitement was running high, for which her name is always remembered.

On the 26th of January, 1852, under Captain Steel, she arrived at Liverpool from New York after a passage of only fourteen days, and within a few hours the *Linda* came in after a passage of twenty-four days from Pernambuco. Next morning the *Refuge,* a Liverpool-owned packet, arrived after a passage of twenty-two days sixteen hours from New Orleans, which was a record. At about the same time the London packet ship *Northumberland* reached New York, after a passage of fourteen days three hours from the Downs and returned in less than sixteen days.

The *Racer* was then put on the Californian and Australian services for a time but she was soon back on the Atlantic run again. On the 5th of May, 1856, bound west, she stranded on the Arklow Bank on the Irish coast. Almost immediately she rolled over on her side, although passengers and crew were taken away safely. But when the owners attempted to salvage her cargo they found that the wreck was so completely taken possession of by local looters that they had to resort to firearms to get at their property at all.

But of all these noble ships, the one which receives most attention, both from her characteristics and her history, is the *Nightingale,* an American-built ship of a very different type, which was designed specially to take passengers across to the Great Exhibition in London. She was one of the most beautiful extreme clippers ever built and a real credit to the New Hampshire shipwrights who turned her out. It was intended that she should be employed first in taking visitors across to the Great Exhibition in Hyde Park, acting as a floating hotel in London during their stay there, and then be utilized as a cruising yacht, the first big ship to be built for that purpose. The advertisement inserted in the *New York Commercial Advertiser* for this trip is rather amusing:

"TRANSATLANTIC EXCURSION TO THE WORLD'S FAIR."

"Rare opportunity for a Cheap and Delightful trip to London. Captain Miller, so favorably known to the Public on both sides of the Atlantic as a Noble Navigator and Gentleman, goes out in command of the *Nightingale.* To sail from Boston on or about June 10th. Rate of passage to London and back:—

| | |
|---|---|
| "First Cabin State Rooms | 125 dollars |
| Ladies' cabin, berths, | 125 dollars |
| Saloon State Rooms | 110 dollars |
| Saloon Berths | 100 dollars" |

Captain Miller may have been all that the advertisement describes him: he was certainly a first-class sailorman and knew just what he wanted. Therefore the builders might not have been so far wrong when they ascribed their financial difficulties to his constant rejection of work and material which did not come up to his ideas. They became heavily involved and were unable even to pay the shipwrights, but in a place like Portsmouth, New Hampshire, shipbuilding was everything and the townsfolk took the greatest pride in their products. Therefore all the company's creditors agreed that the ship must be finished and an important committee was appointed to straighten out her financial affairs.

But it was found impossible to arrange matters satisfactorily and she was purchased for only $43,500, before she had taken a sailing, by one of the parties who had advanced money on her construction. Soon afterwards she was resold to Messrs. Sampson and Tappan and had a most successful career on the Australian and China trades. When she dropped out of that ownership, however, she soon acquired an appalling reputation as a slaver under the command of Captain Bowen, one of the most disreputable men in the trade. He was in no way related to the author. Finally she was abandoned at sea in the spring of 1893.

On the regular run the loss of the *Racer* was only one of many, not all of which avoided loss of life. The risks which some of the sailing ships were willing to take in their rivalry with the steamer is shown by the case of the *Ivanhoe*. She was commanded by Captain Edwards, one of the most successful of the packet masters, with a great reputation for carrying sail. Built in 1837 at New York for the Black Ball Line — by now Marshall's — she had a tonnage of thirteen hundred, and like all their ships was perfectly maintained. When she left New York for Liverpool in February, 1851, the weather already promised to be very bad and got worse steadily. But Captain Edwards decided to carry on and make a fine passage, with the result that in a very short time a packet ship was seen wrecked on Nantucket shoals with all sails still set. Not a soul survived and it was not until some time afterwards that definite evidence was forthcoming that it was the *Ivanhoe* that had come to grief. Naturally enough, the series of losses helped the steamer immensely.

The difference in the conditions on the old emigrant packet clippers and the Inman liners is shown by the fact that the *City of Glasgow,* sailing with five cabin and two hundred and eighty steerage passengers on board, with a crew of seventy-five men, had on board as ship's stores full provisions for fifty days and an ample supply of water, besides having a condensing apparatus in the engine room which robbed the journey of its chief anxiety.

The success of the Inman Line was not lost on keen American shipping men and several attempts were made to start steam services with screw tonnage. The first of these was the *Pioneer,* which sailed from New York to Liverpool in October, 1851, the first American screw steamer to cross the Atlantic. She was a ship 230 feet long, propelled by direct-acting trunk engines. Like the clipper *Nightingale* she was originally intended for the Great Exhibition, but she was not ready until the cream of that business was over and when she did get away she had bad luck in meeting a succession of easterly gales and took eighteen days seventeen hours to make the crossing.

Another American service which was started in 1851, but which had a career of only a few months, was the New England Ocean Steamship Company which put the iron screw steamer *Lewis,* of 1,105 tons, on to a new service between Boston and Liverpool. Unfortunately both ship and service were failures.

In 1852 came the American steamer *South Carolina,* a new screw vessel which left Charleston, South Carolina, on April 17, 1852, bound for Liverpool with the intention of starting a new route. Her propeller was disabled in bad weather and she had to sail to New York, and thence cross to Liverpool. She only appears to have done two voyages before she was taken off service.

Among the steam companies started from the European end was the Glasgow and New York Steam Navigation Company, which began operations with the idea of running a regular service from the Clyde to New York. It had been projected in 1849, the British sponsors being the Langlands, the coasting shipowners. The first ship that they intended for the service was laid down when there was an interesting event expected in the Royal Family and she was provisionally named *Prince of Wales.* Unfortunately things did not turn out as they were expected and she had to be re-named *Princess Royal* in rather a hurry. The plans for the transatlantic line not being ready, she was put on the coasting service and it was not until 1851 that the *Glasgow* was launched by Tod and McGregor, the firm so closely associated with the Inman Line. Her dimensions were 255 feet by 36 and she was designed to carry 160 passengers and 1,500 tons of cargo, her gross tonnage being about 2,000. Captain N. Stewart was persuaded to leave the Cunard Line to join the service and took charge of her. She was soon afterwards joined by the *Edinburgh* and *New York*. The company lasted until the end of the decade, when the *New York* was lost and the other two ships sold to the Inmans.

In the same year, 1851, Arnold Duckwitz of Bremen made an effort to start a German company to rival the Ocean Steam Navigation Company's service between New York and his home port. At that time Admiral Brommy's attempt to raise a German Navy had failed, and the ships had been put up for auction. The idea of Duckwitz was to buy such of them as were capable of being converted into merchantmen and to found a joint stock company to run them across the Atlantic. It was, however, very difficult to raise money in Germany and he did not contrive to float his projected company, but other Bremen interests bought two of the ships, the *Hansa* and *Germania,* and converted them for the Atlantic service. W. A. Fritze and Karl Lehmkuhl were the moving spirits in that enterprise, but the ships were quite unsuitable for the purpose and only made a few voyages in spite of the large sum that had been spent reconstructing them.

All these companies, interesting as they were, only made a side show to the act which overshadowed everything else in the early fifties — the great struggle between the Cunard and Collins lines. The success of the Americans caused the British Post-office to insist on a general overhaul of Cunard contracts, the new service to begin on the first of April, 1850. A further improvement in tonnage was demanded, in return for which the mail contract was to last for twelve years, subject to twelve months' notice. The two main lines, to New York direct and to Boston by way of Halifax, were maintained, but the subsidy was somewhat reduced, eighty-five thousand pounds per annum for the New York run and sixty thousand pounds for the Boston. To compensate for these reductions, the company was given sundry minor contracts to Bermuda and later to various West Indian islands.

To deal with this contract the company reinforced its fleet for a short time in 1851 with two iron screw steamers built by Denny of Dumbarton, the *Australian* and *Sydney*. They had a length of

216 feet, but they were really McIver boats and spent their lives until sold almost entirely in his service.

It wanted something very much better than this, for the Cunarders were being beaten hands down on every point that the public could see. Speed was the most important, always a point of strong public appeal. The *Pacific* soon showed herself to be the fastest of the Collins steamers. In May, 1851, she took the eastward record from the Cunard *Acadia,* which had held it for ten years. She had done a 2,534-mile passage in 9 days 21 hours, the average working out at 10¾ knots. That was considered quite fast enough for the Cunard. But the *Pacific* did a passage of 3,078 miles in 9 days 20 hours 26 minutes, which was an average of 13 knots. On the westward run the *Europa* had taken the record from the *Cambria* in 1848, by the long passage, being 11 days 3 hours and her average speed 11¼ knots. On a route seven miles longer the *Baltic,* in August, reduced the time to 9 days 18 hours, an average of 13 knots. The *Pacific* did it in the same time, in spite of the fact that she was slightly delayed by fog on the Grand Banks and broke some floats on one of her paddles. Her best day's run on that passage was 330 miles. That record stood until 1864 when it was lowered by the Cunard *Scotia,* but the best average speed eastward was increased by the *Arctic* to 13¼ knots in February, 1852, and by the Cunard *Persia* four years later to 13¾.

It was not until the summer of 1851 that both companies decided that their fares would have to be reduced and announced that in the following November the cabin fare would be cut down from thirty-five pounds to thirty pounds. They were forced into this by the reduction which had already been decided upon by the Southampton steamers, while the smaller vessels then running from Glasgow only charged twenty-one pounds. Had it not been for this the Cunard and the Collins lines would have avoided a reduction which was not felt to be absolutely necessary on the Liverpool side.

The Cunard Line is often accused of slackness during this period, but the accusation is unjust and ignores the handicaps under which they labored. To meet the increased competition, the Cunard improved its mail service during the winter of 1851–1852, without any demand from the Government. They decided to continue to dispatch a mail steamer from Liverpool every Saturday throughout the winter instead of reducing the sailings as they were entitled to do and as they had always done before. The passenger traffic at that season was not heavy enough for a weekly sailing, so that the mails became the main consideration and the steamers sailed as soon as the mails which had been dispatched from London overnight came alongside. This started the Cunard Company's morning sailings, which have been continued practically ever since.

It would appear, however, that it was faulty strategy on their part to dissipate their efforts in other services, as they did in 1852, instead of concentrating on the main route. Firstly the iron screw steamers *Alps* and *Andes,* afterwards reinforced by the *Jura* and *Etna,* were built for the West Indian service, and secondly Charles MacIver built on his own account four steamers, the *Teneriffe, Taurus, Karnak* and *Melita,* for the Mediterranean service, a service which was almost immediately afterwards transferred to the Cunard Line and which they still maintain, although they have used the tonnage of their subsidiary companies on it since they sold their "brigs" a few years ago.

Although the *Alps* and *Andes* were sister ships, the latter is generally regarded as being by far the more interesting as she was the first iron Cunard screw cargo steamer built for the Atlantic trade. Denny of Dumbarton built the hull and Tulloch and Denny the geared two-cylinder beam engines which drove a screw fourteen feet in diameter. She had accommodation for sixty-two first and one hundred and twenty-two second-class passengers, the first-class saloon being fifty-five feet long, and she also carried a thousand tons of cargo with the most modern means of handling it. The provision of a donkey engine was regarded as the very last word in up-to-dateness.

So anxious was the company to get her out to New York to start her service that she sailed without her mails, which had been delayed on the line. But she only got about eighty miles west of Cape Clear when she met such a gale that she lost her jib boom and the greater part of her bulwarks forward and was forced to put back to Liverpool. It may be mentioned that she did not last very long in the Cunard service, she and the *Alps* being sold to the Spanish Government in 1859.

Far more important was the *Arabia,* built by Steele of Greenock and engined by Napier of Glasgow specially to beat the Collins cracks. Two ships of this name were laid down, but the first was sold to the Royal Mail Steam Packet Company to replace the burned *Amazon,* and ran as the *La Plata,* her name being transferred to the second ship which was originally to have been christened *Persia.*

She was a beautiful ship to look at, and as the last wooden Cunarder deserves particular mention in the history of the Atlantic. Had they abandoned their conservative policy and gone in for iron she might have succeeded in her purpose, but although she was designed and built with the greatest care her side-lever jet-condensing paddle engines, with two cylinders, one hundred and three inches in diameter by one hundred and eight inches stroke, were too powerful for her hull when working up to their full designed speed of thirteen knots. They were supplied with four tubular boilers, the first to be fitted in a Cunard ship, which were so big that they had to be shipped in sections and put together on board. They were fixed athwartships, the furnaces facing one another, which was inconvenient for the coal supply and apt to be uncomfortable and dangerous as the ship rolled.

Although designed for thirteen knots only, she was an extraordinarily fast ship in smooth water, working up to fifteen knots, but she lost her speed rapidly in any weather and her engines showed signs at the very beginning of her career that they would wrack her hull to pieces. She cost the company a lot in repairs and burned one hundred and twenty tons of coal a day at her best, so that they were quite glad to get rid of her in 1864.

Whatever faults the *Arabia* may have had from the point of view of the naval architect or engineer, there is no doubt that in fitting and equipment she was a long way ahead of all her contemporary liners. She was originally rigged as a brig instead of being cut down to one after service, as were her earlier consorts, with the result that the after saloon was not interfered with by the foot of the mizzen and the architect took full advantages of the opportunities given. A cupola with stained-glass panels gave extra head-room and greatly improved the appearance of the saloon, and the ship was fitted with two small libraries, a proper smoking room for the gentlemen instead of the very uncomfortable apart-ment provided in the earlier ships and, what was undoubtedly the greatest boon on the North Atlantic in winter, steam heating throughout the ship.

In sea speed, which was all that really mattered, the *Arabia* could not touch the Collins packets which started to compete among themselves for the Blue Ribbon. The eastward record which had been won in 1851 by the *Pacific* with an average speed of thirteen knots passed to her sister ship the *Arctic* in February, 1852, with a quarter of a knot more speed. Neither ship did particularly well on the westward run and the average speed of thirteen knots which had been logged by the *Baltic* in 1851 stood for thirteen years.

The year 1852 was the real beginning of the company that was afterwards to grow into the Anchor Line and to maintain a successful service between the Clyde and the United States which was far superior to the efforts which had preceded it. Messrs. N. and R. Handyside had existed as shipbrokers in Glasgow since the thirties, and although they owned a few small ships they did not go in for shipowning seriously. In that year, however, they determined to obtain some of the profits in the sailing emigrant business and accordingly took into partnership Captain Thomas Henderson, who had already had considerable experience in that line. He was one of a family of four brothers, the eldest of whom, David, went into partnership with his youngest brother William and formed the firm of D. and W. Henderson, shipbuilders, who eventually took over Tod and McGregor's and who still have a fine reputation on the Clyde.

Thomas, who was taken into partnership by the Handysides, was the second brother and the third, John, was put in command of the 844-ton sailing ship *Tempest* which they bought for the service in 1853. To begin with, Captain Thomas Henderson was not overenthusiastic about the Atlantic trade and persuaded his partners to run their ships as they required them on the Lisbon and Western Mediterranean trade, with occasional voyages out to Valparaiso. Within a year, however, he had fallen into line with his partners and although they still maintained the Eastern trade they began to buy new tonnage, both auxiliary and full-powered steam, for the Canadian run without attempting a really regular service for some time.

At this time a famous Atlantic liner returned to service after a long absence, for the *Great Britain* sailed from Liverpool for Sandy Hook on the morning of May 1, 1852. This was her first sailing since the accident in Dumdrum Bay in September, 1846, and followed what was practically a reconstruction. When she was salved in 1847 she was taken to the Sandon Dock at Liverpool and while there, in 1849, Mr. Collins of London arranged to purchase her for twenty thousand pounds and to spend another twenty-two thousand pounds in getting her ready for sea. But this scheme fell through and the original owners attempted to buy her back from the insurance company. In the meantime, in December, 1850, Messrs. Gibbs, Bright and Company of Liverpool purchased her for eighteen thousand pounds and immediately effected great alterations.

The old saloon in the hull of the ship was given up to cargo and was replaced by a new long deck house. Fifty first-class passengers altogether were accommodated and their quarters were infinitely more comfortable than in the original ship. At the same time she could carry about one thousand tons more cargo, partly owing to this saloon space and partly owing to the fact that her new engines and boilers took up far less space than the old, although they gave greater power. Penn's of London made these engines and the six boilers which were ranged three on either side of the ship, the two funnels being set athwartships instead of fore and aft. The original six masts were replaced by four, carrying six thousand square yards of canvas, and although she was not a fast ship, her first passage after reconditioning being thirteen days six hours forty minutes, she was a very comfortable vessel on the Atlantic service under the command of the famous Captain Mathews of the *Great Western*. After one sailing she was transferred to the Australian run where Gibbs, Bright and Company had a big connection with sailing ships.

The great event of the first half of the fifties, as far as the Continent was concerned, was the decision of the Hamburg American Line to turn from sail to steam. This was made in 1853 and the manner of the decision is interesting. A general meeting was held in February and it was suggested by a private shareholder that the time had come when the directors should consider abandoning the sailing ships with which they had done fairly well and enter into the international competition with steamers. Herr Godeffroy, in the Chair, severely trounced the suggestion, pointing out the absolute impossibility of even considering such a suggestion without the heavy government subsidy which the Cunard and other companies received, and for which they could not hope while Germany was doing all she could to discourage emigration.

But a second general meeting was held on the 20th of December of the same year and at that Herr Godeffroy sponsored the suggestion that it was absolutely necessary to commence the building of steamships. He did not approve of wasting time or money by considering either paddlers or wooden ships; they must have screw steamers equal to the best afloat. Eleven shareholders were against this suggestion, forty-two were quite willing to forgive the Chairman's inconsistency in their delight at getting the move made. Finally, the company was unanimous and the step was taken.

It was a big step, particularly in view of the Chairman's determination to have nothing but the best. On the six biggest sailing ships which the company had built they had spent 576,600 marks only, but the two first steamers alone would cost far more than that. The capital of the company had to be increased to two million marks and it is interesting to note that, in spite of all the difficulty that the directors had in raising the first small capital only a few years before, Hamburg interests subscribed the whole of this sum except one hundred and eight thousand marks.

In this new program the company wanted to favor Germany, and particularly Hamburg, as far as it possibly could but it was not an easy aim. The German shipbuilding industry had been making considerable progress, but it was still far behind the British and there was not a yard capable of building steam tonnage anything like the size proposed. So the company went to Cairds of Greenock for their first ships, starting a connection which lasted for many years, but in personnel they contrived to carry their patriotic determination into effect and in spite of all discouragement and gloomy forebodings, the crews of the Hamburg American ships were German from the very beginning. There was not so much difficulty with the deck hands, for in those days of auxiliaries the duties of the steamer seamen were very similar to those of the sailing-ship man, but below decks it was different. The company persuaded Naval Engineer Diedrichsen of the Prussian Navy, a native of Holstein who had made a great name for himself in engineering circles, to resign his commission and take service with them, first to supervise the building of the ships at Greenock and then to be chief engineer of the flagship. Captain Heydtann, who was to be commodore, had already seen service in the company's sailing ships and was sent down to the Mediterranean to get steam experience while the steamers were building.

The names selected for the first pair were *Borussia* and *Hammonia,* excellent ships of their type, having a gross tonnage of round about 2,025, a speed of 12 knots in favorable circumstances, and a fair amount of cargo stowage in addition to accommodations for 54 first class, 146 second class and 310 emigrants.

In spite of the capital outlay necessary, the steamers made a very good business comparison with the sailing ships, the last of which was the *Donau.* With a crew of under twenty, an economy it is true, the sailing ship carried twenty passengers in the first and second class and two hundred and forty-nine in the 'tween decks. One hundred thaler was the fare charged in the first class and seventy for the second. With the steamer's bigger passenger accomodation — admittedly her crew was between seventy and eighty — one hundred and twenty thaler was charged for the first and seventy-five for the second-class accommodation. In addition the steamers filled up with cargo very much more quickly than the sailing ships.

In considering the position of the Hamburg American Company in competition with the other lines which received mail or other subsidies from their governments, it is interesting to note the directors' estimates of how their income was divided. Rather more than fifty-eight per cent. came from passenger fares, rather more than forty-one per cent. from freights, and exactly one half of one per cent. from the Government for mail services.

To complete these ships Cairds took nearly six months longer than the owners had bargained for, and when they were ready for sea there was the opportunity of chartering them as troop ships for the repatriation work which followed the Crimean War. The *Borussia* was taken up by the British Government and the *Ham-*

*monia* by France, an advantageous arrangement for the company because they paid generously, tided them over rather an awkward period and gave the raw German crews experience in the handling of their ships which was literally invaluable. The result was, however, that the service did not start until the sailing of the *Borussia,* under the command of Captain Schwensen, on the first of June, 1856.

In 1853 a real attempt was made to improve the Canadian trade, until then maintained by miscellaneous sailing vessels, by the arrangement of a mail agreement for a steam service. McKean, McLarty and Lamont of Liverpool, who had not until then run any regular service, agreed with the Canadian Government on a schedule dispatching mails twice a month in the summer and once in the winter, for which they were to receive rather more than twelve hundred pounds subsidy per round trip, provided the westward passage did not exceed fourteen or the eastward passage thirteen days. The conditions do not appear onerous, but not having available tonnage of its own, the company collected any steamers upon which it could lay its hands at a reasonable price and started the service with a heterogeneous fleet that was quite unsuitable for the purpose. The old auxiliary *Sarah Sands,* built for the Australian trade in 1847, was the biggest ship in the fleet, but she was intended primarily as a sailing ship with machinery only powerful enough to kick her over a calm. At the other end of the scale was the 502-ton *Genova,* designed for Mediterranean service in 1850.

With such unsuitable material it was not surprising that the service was most unsatisfactory and irregular, costing very much more than the transmission of mails by sailing ship and being little, if any, better. But no other firm came forward and the company traded for eighteen months when the patience of the Canadian Government finally gave out and the contract was cancelled. Happily for the shareholders, the Crimean War gave them an opportunity of getting their money back in government service.

The inherent superiority of the steamship over the beautiful sailing vessel was shown in 1853 when the clipper ship *Sovereign of the Seas* was temporarily taken off the Californian run and sent across from New York to Liverpool. Donald McKay and his wife were among the passengers and she was in first-class trim with a first-class crew. The Cunard Liner *Canada* left New York for Liverpool at the same time and naturally there was the greatest excitement over the possibilities of a race. Five days out the *Sovereign of the Seas* was well ahead, having over three hundred miles in hand and appearing safe for the race. But in the end the Cunarder beat her by two days, although the sailing ship's best run was 340 miles to the steamer's 306 and she maintained the remarkable average of 12.75 knots from the Grand Banks to Cape Clear. When she was then loaded for Australia her owners knew perfectly well that there was no steamer on that route to touch her, no matter what they might do on the Atlantic, and they advertised that they were willing to give back a large proportion of the charter money if she did not make a faster passage than any steamer on the berth.

About this time the sailing packets were beginning to get a very bad reputation for epidemics on board, a state of affairs which is not altogether surprising when one considers the people they carried and the way they were allowed to indulge in any taste for dirt which they possessed in the crowded confines of the 'tween decks. The strict supervision in the early American packets was no longer exercised. It became the usual thing for the sailing ships arriving in New York to have a heavy death roll and in the twenty-two ships which arrived within a period of six weeks in September and October, 1853, there were no less than three hundred sixty-three deaths, many of them undoubtedly cholera. The *Winchester* lost 79 passengers out of 463, the *Charles Sprague* 45 out of 280, and the *Marmion* 34 out of 295.

A most interesting side light on life in the British packets at this period and on the seamen who manned them is to be obtained from the statutory list of offenses and the normal punishment attached thereto which was embodied in the Merchant Shipping Act and printed on the back of every ship's articles which the men signed when joining up.

| | |
|---|---|
| Not being on board at the time fixed by the agreement ........................................ | Two Days' Pay |
| Not returning on board at the expiration of leave | One Day's Pay |
| Insolence or contemptuous language or behaviour towards the Master or any mate .............. | One Day's Pay |

| | |
|---|---|
| Striking or assaulting any person on board or belonging to the ship | Two Days' Pay |
| Quarrelling or provoking to quarrel | One Day's Pay |
| Swearing or using improper language | One Day's Pay |
| Bringing or having on board spirituous liquors | Three Days' Pay |
| Carrying a sheath knife | One Day's Pay |
| Drunkenness. First Offence | Two Days' on half allowance of provisions |
| Ditto Second Offence | Two Days' Pay |
| Neglect of the Officer in charge of the watch to place the lookout properly | Two Days' Pay |
| Sleeping or gross negligence while on the lookout | Two Days' Pay |
| Not extinguishing lights at the time ordered | One Day's Pay |
| Smoking below | One Day's Pay |
| Neglecting to bring up, open out and air bedding, when ordered | Half a Day's Pay |
| (For the Cook) Not having any meal ready for the Crew at the appointed time | One Day's Pay |
| Not attending Divine Service on Sunday unless prevented by sickness or duty of the ship | One Day's Pay |
| Interrupting Divine Service by indecorous conduct | One Day's Pay |
| Not being cleaned, shaved and washed on Sundays | One Day's Pay |
| Washing clothes on a Sunday | One Day's Pay |
| Secreting contraband goods on board with intent to smuggle | One Day's Pay |
| Destroying or defacing the copy of the agreement which is made accessible to the Crew | One Day's Pay |

If any officer is guilty of any act or default which is made subject to a Fine, he shall be liable to a Fine of twice the number of Day's Pay which would be exacted for a like act or default from a Seaman, and such fine shall be paid and applied in the same manner as other Fines.

On the 26th of December, 1853, the packet fleet suffered a crushing blow by a terrible dockside fire in New York. It began in one of the business streets downtown, and soon both sides were blazing furiously. Some of the sparks were carried into the sails of Donald McKay's new *Great Republic,* whose colossal size had made her an object of the greatest interest while she was loading, and in a very short time she was blazing. The next victims were the equally famous *White Squall* and the packet ship *Joseph Walker.* Every effort was made to save the ships, but, although the *Great Republic* was scuttled before she could be burnt to the water line and was subsequently salved, they were all regarded as destroyed at the time. The hull of the *Great Republic* was only half insured and even her cargo was considerably undervalued. The *Joseph Walker's* cargo was uninsured and only the *White Squall* was adequately covered. The clipper *Whirlwind* and the *De Witt Clinton* were hurriedly cut adrift and allowed to drift out of reach of the fire.

The finest and most famous of all the sailing clippers was the *Dreadnought,* which was built for the Red Cross Line in 1853 by Currier and Townsend at Newburyport. She was designed on only semi-clipper lines, having a registered tonnage of 1,400 on dimensions 200 by 39 by 26 feet depth of hold.

Her name will always be associated with that of Captain Samuel Samuels, who was appointed to her command while she was still under construction, after having made a big reputation for himself as a commander of sailing ships. He supervised her completion and at the end he secured for the owners a ship of which they had every reason to be proud. She made undisputed passages of nineteen days westward and thirteen days eleven hours eastward. But she is principally remembered by her famous and much disputed passage in March, 1859, concerning which so much has been written and said. There appears to be no serious question as to her having done the whole passage between Sandy Hook and the North West Lightship in thirteen days eight hours, but many have questioned whether she reached Queenstown nine days seventeen hours out of New York. If so, it is far and away the fastest sailing-ship passage across the Atlantic, and when the evidence is examined there appears to be little reason to doubt it.

It was in the same year that Captain Samuels had his famous mutiny with members of a criminal gang in Liverpool known as the "Bloody Forty," who shipped as crew with the avowed intention of murdering him and capturing the ship. With the aid of his dog and one of his mates he checked the first rush, after which he persuaded a number of German emigrants on board to support him and the mutiny was crushed in a manner that the mutineers understood. When they arrived at their destination the men who had tried to murder him cheered him to the echo.

In spite of her triumph, however, the Red Cross Line was very hard hit in the middle fifties and had the greatest difficulty in keeping its sailing packets running. The *Andrew Forster* was sunk in collision, the *St. Patrick* was wrecked, the *St. George* burned and nobody knew what happened to the *Driver*. Then the *Racer* was wrecked off the Irish coast in a manner already recorded; soon afterwards the *Highflyer* was sent for the single trip to San Francisco and never made port. Only the famous *Dreadnought* kept the flag flying on the Atlantic.

While the sailing ships were going rapidly downhill the opportunity was taken to try all sorts of experiments with steamers. Most of them were hopelessly impracticable from the first and only one or two are of permanent historical interest even if they did end in failure. A particularly interesting one was tried in 1853, when Captain John Ericsson, the famous inventor, put on to the Atlantic service an air-engined ship which was apparently known impartially as the *Ericsson* or the *Caloric*.

The idea of working an engine by hot air instead of steam had always appealed particularly to Ericsson, and the thirty-inch model which he built answered so wonderfully that he had no difficulty in getting the backing of a party of New York capitalists headed by Mr. John V. Kitching. She was built at Willamsborough, but the syndicate stipulated that she should be stronger than any vessel known in the State of New York. Her gross tonnage was 1,920 with dimensions 260 feet by 40 feet by 31 feet depth of hold, the hull having a clipper stem and counter stern and being rigged as a brig, with four stumpy cyclinders arranged in pairs instead of funnels arranged forward and aft of the paddles.

She had four working cylinders arranged in pairs and suspended over the furnace fires, the air-compressing cylinders being arranged above the working cylinders. This engine worked at a pressure of twelve pounds to the square inch and Ericsson was quite confident that he could get ten or twelve knots out of the ship without any difficulty and with considerably greater economy than could be obtained with any steamer. The economy was there right enough, for she only burned six tons of coal per day, but although the engines alone cost one hundred thirty thousand dollars the best that she could contrive in favorable circumstances on trial was eight knots. After a few weeks' experience the engines were taken out and replaced by ordinary steam machinery, with which she ran until she was wrecked in 1892, having been chartered by the Collins Line for a spell and also running on the New York-Bremen service.

In 1854 the steamer *W. Norris,* which was designed to cross the Atlantic in five or six days, was built in the United States. She was very flat and sharp, wooden built with diagonal iron and an iron keelson extending from the keel to the deck, except in the engine space. This keelson was composed of two parallel sheets of half-inch iron with a water tank between them and it was expected that this method of construction would make her the strongest ship afloat. Unhappily she was a total failure.

Vanderbilt put his yacht *North Star* into the Southampton service for a short time in 1853, a wooden paddler of two thousand tons burden, brigantine rigged, which had been built by Siminson of New York. As she cost a colossal amount, was most luxuriously fitted, and had a crew which cost three hundred fifty pounds a week in wages, she was not a satisfactory dividend earner, although no doubt she afforded her passengers great pleasure.

In January, 1854, the Cunard Line completed a five hundred-foot pier on the Jersey side of New York Harbor, with a covered shed extending its whole length.

By instructing Messrs. J. and G. Thomson of Glasgow — now John Brown of Clydebank — to build them the iron screw steamer *Jura,* the Cunard Line expected to make a big impression in the 1854 season, for her gross tonnage of 2,241 and her four hundred horse power (nominal), geared beam engines made her a noteworthy ship and she was the biggest merchantman afloat excepting only the Peninsular and Oriental liner *Himalaya.* The effect missed fire, however, for as soon as she reached Liverpool from her builders' yard she was taken up as a transport for the Crimean War. She finished her days in the Allan service.

The outbreak of the Crimean War in 1854 completely upset the Atlantic services. The task of transporting the Allied armies and their baggage to the Black Sea called for the services of every available British ship that could be regarded as suitable and many that were not. The Atlantic steamers being the best under the British flag, naturally went first: this was one of the things specially provided for in the mail subsidy contracts. The French had no suitable tonnage for the transport of their troops and drew on the British merchant service as well, although many of their reinforcements were carried on naval ships when it became quite clear that the Russian fleet was so inefficient that it was not necessary to keep men of war in fighting trim on passage. Many of the sailing packets, both British and American, were also chartered.

The partners of Richardson Brothers associated with the Inman Line were Quakers, and therefore did not approve of any favor being shown towards the Government's offer to charter the company's ships as transports. Mr. Inman was in a position to do without them and therefore assumed the sole management, chartering the *City of Manchester, City of Baltimore,* and later the *City of Washington* to the French Government on excellent terms.

As soon as the war broke out, the British Admiralty immediately put into effect its right to take up the Cunard liners and in a very short time the services were crippled. The immediate withdrawal of the *Alps* and *Andes* for the purpose of conveying dead and wounded from the base at Balaklava to Scutari put a stop to the West Indian service. The *Niagara* and *Cambria* were taken up as transports, the former converting for the service in eleven and the latter in eight days from their arrival at Liverpool with passengers and cargo from New York. *Jura, Etna, Europa* and *Arabia* were taken up very soon afterwards, one or two others for short terms, and in order to carry on any sort of a service at all the *Emeu* was purchased.

She certainly would not have been considered by the Cunard Line for one moment had the circumstances been different. She was a ship of 1,538 tons and 300 horse power, just completed by Robert Napiers for an Australian service and was ill suited for Atlantic work. In 1859 she was sold to the Peninsular and Oriental, for whose run she was much better fitted, and finished her days as a sailing ship, being wrecked in 1880.

Most of the Cunarders were taken up for Mediterranean service, and although the *Niagara* missed that she was kept very busy running back and forth across the Irish Sea between Liverpool and Ireland, which then contained numerous British military depots. In less than two months Captain Shannon carried in this ship 367 officers, nearly 11,000 soldiers, 974 women and nearly 1,200 children, in addition to over 18,000 tons of military stores. The only consolation was that the Cunarders were lucky in getting the maximum rate of charter, round about fifty shillings per ton per month, but twenty shillings was the normal standard and the Government was constantly trying to bring the level down to that. In some cases a lump sum was paid instead of the monthly rate of charter. On occasions these liners were found capable of carrying a complete regiment apiece — twelve hundred-odd officers and men, in spite of their small size.

Owing to so many of the Cunarders being on War duty their mail service was hopelessly disorganized, but the Collins Line altered their sailing day to Saturday during the worst period of the winter of 1854 in order to cover the service and not to inconvenience commerce.

When McKean, McLarty, and Lamont failed in their Canadian mail service, the Allan Line, which had held the premier place on the Canadian trade with sailing ships since 1819, stepped into the breach and volunteered to maintain a satisfactory mail service to the St. Lawrence. Hugh Allan, the most enterprising member of a very enterprising family, had been very greatly struck with the success of the methods and material of the Inman Line and when he came to plan his new service his calculations were based on ships of very similar design to their pioneer *City of Glasgow.*

The reputation of the Allan family was so good that they had not the least difficulty in raising the capital in Canada to float the Montreal Steamship Company and they ordered from Denny of Dumbarton the sister ships *Canadian* and *Indian* very much on the lines of the Inman ships. Their gross tonnage was rather more than 1,750 and they were well canvased in addition to having an engine of 350 nominal horse power, working at twelve pounds pressure, which gave them a speed of about eleven knots. They had eighty first-class passengers and a large number of third, while their cargo capacity was quite good for ships of their size.

They cost fifty thousand pounds apiece, which in those days was rather a heavy outlay for a service whose success was problematical but in which Allan had every faith. The *Canadian* took her maiden sailing in September, 1854, and was soon afterwards joined by the *Indian.* Their success on the Canadian route was immediate and they soon attracted the attention of the authorities who took them both up as Crimean transports. This forced the Allans to postpone their intention of applying to the Canadian Government for a mail subsidy, but as soon as the War was over they took up the matter and after a good deal of discussion agreed to a subsidy of twenty-five thousand pounds per annum for a fortnightly service to the St. Lawrence in the summer and a monthly one to Portland, Maine, in the winter. While the two extra ships necessary for this schedule were being built the *Anglo-Saxon* and the *North American,* they supplemented their own two ships with most of the tonnage which had been owned by McKean, McLarty and Lamont, tonnage which they disposed of at the first opportunity.

The tragic event of 1854 was the loss of the Collins steamer *Arctic,* the first of an extraordinary run of ill luck which finally killed the American enterprise. She was immensely popular but was always a very extravagant ship and in August, 1854, was taken in hand at New York and superheating apparatus was added to her boilers, an important event in the history of marine engineering which generally passes unnoticed.

Immediately after her return to service, in September, 1854, she was run down by the *Vesta* off Cape Race. At first it was thought that the smaller vessel was in the greater danger and the *Arctic's* people took immediate steps to go to her assistance, not realizing that their own ship was fatally holed. The result of this wasted time was that no less than 322 lives were lost, including Mr. Collins' own family, the majority of the boats being smashed in the heavy weather. Two of them were picked up, containing fourteen passengers and thirty-four members of the crew, while later a passing vessel found a raft with one man alive of the seventy-six who had sought refuge on it when the ship went down.

This disaster struck a heavy blow to the popularity of the Collins Line, for there were still many people who were always ready to cast doubts on the safety of the transatlantic steamer.

To maintain the regular schedule after this disaster the Collins Line chartered the *Nashville,* a wooden paddler of eighteen hundred tons burden which had been built in 1853 for the service between New York and Charleston, South Carolina, and was regarded as the finest coasting steamer under the Stars and Stripes. She had already been on the transatlantic service, for the New York and Havre Company had chartered her for a short time to replace the lost *Humboldt*. Considering that she was designed for a totally different service, she was quite a successful vessel on the North Atlantic, doing the eastward passage in twelve days and the westward in sixteen days against a succession of heavy gales. She is best remembered, however, by her service as a Confederate corsair during the Civil War.

Happily without loss of life, and completely overshadowed by the tragedy of the *Arctic,* the loss of the New York and Havre Company's *Franklin* in July, 1854, when she was wrecked on Long Island, was a serious blow to that company, following as it did so soon after that of the *Humboldt*. In the same year the Inman Line had two disastrous losses. The *City of Glasgow* left port on March 1, 1854, and was never heard of again, not the least clew being obtained as to her fate or that of the 480 people she was carrying. In September the *City of Philadelphia* was wrecked on Cape Race, but in that case there was no loss of life.

These disasters naturally directed public attention to transatlantic shipping and all to do with it, whether connected with the safety of the ships or not. As far as emigrants are concerned, their charter came in 1855, in the shape of the British Passengers' Act, which remained in force for many years with sundry additions and improvements. There is no doubt that this Act was brought into being partly by the fact that the steam companies had proved that greatly improved conditions were quite possible and feasible, and also because a number of scandals in sailing emigrant ships had received full ventilation. The Act aimed at the elimination of all abuses as far as was possible by legal action, and provided heavy penalties for any shipowners or ships' officers who transgressed its clauses.

It first of all provided for the careful government inspection of all ships licensed for the carriage of emigrants, their fittings, accommodation, provisions, etc., and gave them the right to cancel the sailing until things were righted or to condemn the ship's arrangements altogether. The space provided for every person on board, and adequate ventilation, was also thoroughly dealt with.

In order to avoid the appalling conditions which admittedly had held in many sailing ships, strict regulations were made for the single men and women to have entirely separate sleeping places during the voyage, to apply to all children over fourteen years of age. Parents with children under that age were allowed to sleep together and several families could be berthed in the same quarters. The company had to provide adequate provisions and medicines, satisfactory hospital space, a doctor and sufficient stewards, while — a godsend to the emigrant — the ship had to undertake all the necessary cooking, although at that time and for long afterwards the passengers themselves brought on board their bedding, plates and the like.

Commodore Vanderbilt caused a sensation in 1855 when he put his new steamer *Vanderbilt* on to the New York-Southampton-Havre route, for she was a really magnificent vessel. She was considered the fastest steamer on the North Atlantic at that time, logging a record of nine days eight hours from New York to the Needles on her first passage and later cutting it down to nine days five hours from New York to Southhampton. Her length over all was 340 feet, and she had a tonnage of roughly 5,000 burden, the actual weight of the hull being 2,300. The two-cylinder beam engines were by the Allaire Works of New York and were fed by four tubular boilers. The paddles, forty-one feet in diameter, worked at fifteen revolutions per minute and at full speed she consumed one hundred tons per day.

Her later history, after she was withdrawn from the Atlantic Ferry, is particularly interesting. When the Civil War had been in progress for some time Vanderbilt patriotically made a present of her to the American Navy, who filled in her bow to form a solid ram and commissioned her to seek for the corsair *Alabama*. She was not successful in this quest, but she was a particularly useful vessel all the same, both during the war and immediately after it. She was sold out of the service in March, 1873, and was bought by San Franciscan owners who took out the engines and converted her into the sailing ship *Three Brothers*. As such she had a fine reputation for speed, while the durability of her hull is shown by the fact that when she was well over seventy years old she was still acting as a coal hulk in Gibraltar, being scrapped in 1929.

When the *Humboldt* and the *Franklin* were lost, the New York and Havre Line immediately planned to build two new ships in their place, but they were some time under construction and did not go into service until 1855. They were the *Arago* and *Fulton,* bigger and very much better ships than their predecessors and propelled by oscillating engines. The company maintained the service as regularly as was possible with two ships until 1861, when they were taken up for war service.

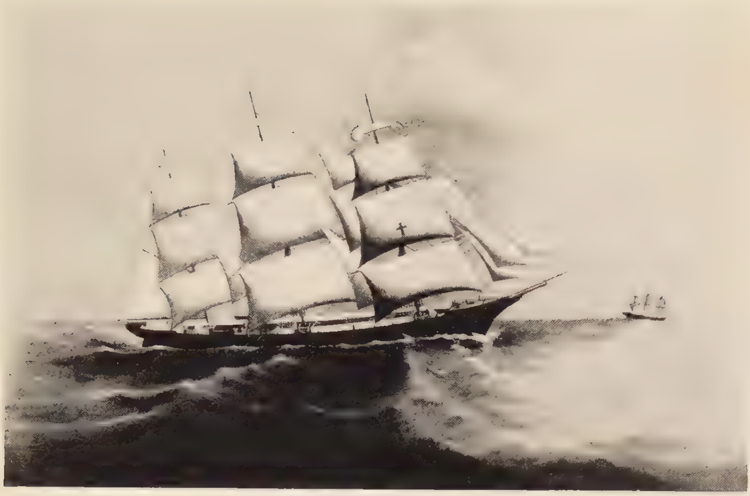
The *Arago* differed considerably in her details from the *Fulton,* the former being built by Westervelt and the latter by Smith and Dimon, both of New York. The *Arago's* dimensions were 292 feet on deck by 40.8 feet beam by 31 feet depth of hold which gave her a tonnage of 2,260, while the *Fulton* was 290 feet on deck, 42.4 beam, and 31.6 depth of hold, her tonnage being 2,061. Both had inclined oscillating engines, having two cylinders sixty-five inches in diameter, with a stroke of ten feet. The *Arago* had two iron flue boilers with two tiers of furnaces in each, one being forward of the engines with double return flue and the other abaft with single return flue. She had a coal consumption of forty-five tons per day and stowed nine hundred tons, while her cargo capacity was also nine hundred. The *Fulton's* two boilers were Martin's patent with vertical brass tubes.

Fate seemed determined to down the Collins Line, in spite of their gallant efforts to maintain their position on the Western Ocean. Early in January, 1856, the *Pacific,* under Captain Eldridge, left Liverpool with forty-five passengers and a crew of one hundred forty-one, the Cunard *Persia* leaving at about the same time. It was thought that they would make an exciting race of it, but the *Persia* came into contact with an iceberg and her people gave up all hope of beating the Collins crack. When she arrived in New York with her fiddle bow buckled, however, there was no news of her rival, and week after week passed without a clew being obtained as to her fate. It is presumed that she came to grief in the ice from which her straight stern afforded no protection.

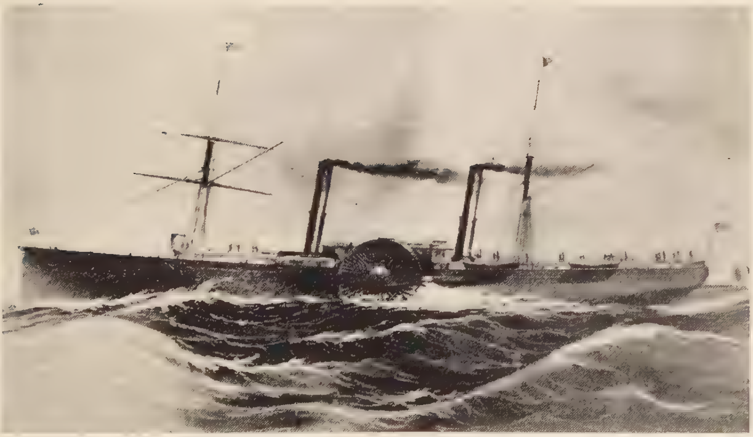
This disaster caused her owners to take a precaution which should have been taken long before by every Atlantic liner; the *Baltic* was immediately taken in hand and fitted with bulkheads. Even then the job was only half done, the bulkheads being of wood instead of iron, and this feature was so openly criticized at the time that the move did little good in restoring the fleet to popular confidence.

The company was in a bad way, but even their bitterest enemies were compelled to admire their gallantry in striving to overcome their misfortunes. They had determined to make a stern fight of it and accordingly in 1856 the *Adriatic* was built by George Steers to replace the lost *Pacific*. She was far and away the finest ship of the line, having a gross tonnage of 5,888 and engines by the Novelty Works of 1,350 horse power; but like all the other ships of the line she was both costly to build and extravagant to run. Nothing was spared in her construction and her fitting out, one of the innovations in her design being that of a calcium light fitted in her foretop, one of the earliest searchlights ever to be sent to sea, which was supposed to throw a beam for three or four miles. In practice it did not prove a great success. Externally she was an infinitely better-looking ship than her predecessors, with a very much less clumsy hull and two funnels widely spaced.

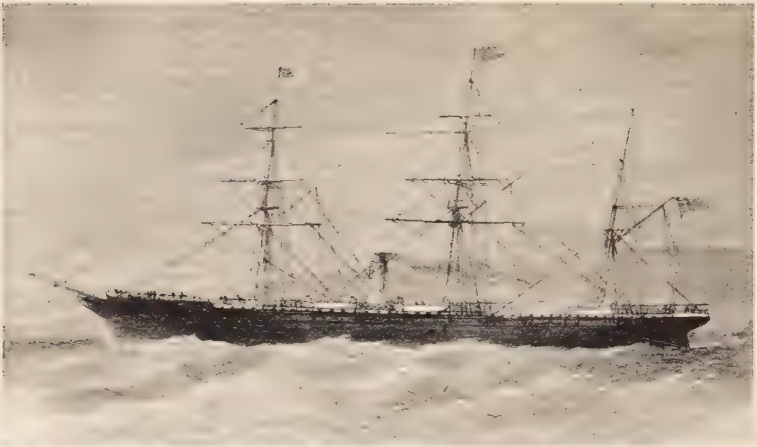
But no amount of effort, however gallant, could save the unfortunate company. Misfortune piled on misfortune. The farming and railroad interests of the United States had long been jealous of the money paid to the Line, which they maintained ought to be more generally distributed throughout the country, with particular regard to their own point of view. Boston, Philadelphia and Baltimore were also very jealous of the manner in which the trade of New York was helped by this service, and put forward their pleas. All united to maintain that the money was wasted. The result was that the maximum subsidy was suddenly reduced in 1856 from eight hundred fifty-eight thousand dollars per annum to three hundred eighty-five thousand, at which level such expensive ships could not possibly be kept on the mail service. At the same time the full number of voyages was insisted upon. It is impossible to maintain, when the political side is dead, that the money spent on the Collins Line by the United States Government was wasted. Conditions were different then from nowadays, when few subsidies can be justified. It restored the prestige of the Stars and Stripes on the Western Ocean, it encouraged American shipowners and shipbuilders to further effort, and it hastened the development of the first-class liner by many years. Both the ships and the men who



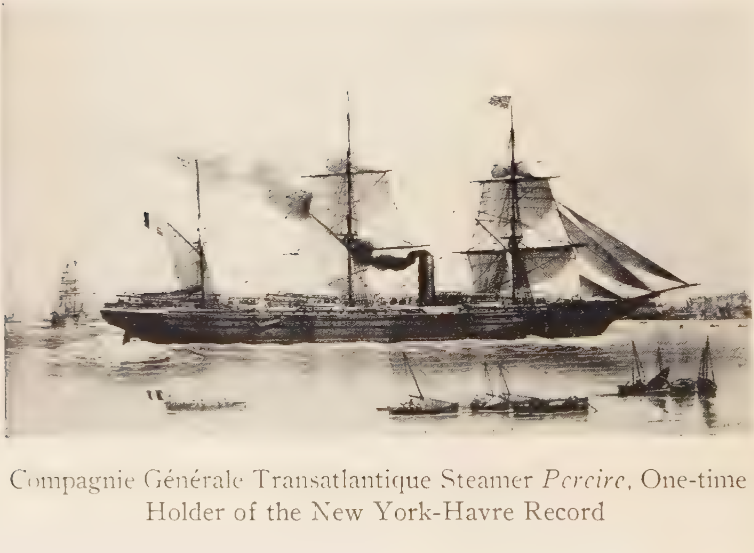
The Red Cross *Dreadnought*, The Final Development of the Clipper Packet and Holder of the Transatlantic Sailing Record



The Collins *Adriatic*, One of the Most Successful Wooden Paddlers on the Atlantic



*China*, First Iron-Screw Steamer Built for the Cunard Mail Service



Compagnie Générale Transatlantique Steamer *Pereire*, One-time Holder of the New York-Havre Record had served in them proved of the very greatest service to Uncle Sam during the American Civil War. It is true that the Line had been extravagantly run — "breaking our window with sovereigns" the Cunard people called it — but it must be remembered that they had to go at least one better than their rivals to force the Stars and Stripes into an established business.

The directors struggled to keep their flag flying for some time and to get at least a measure of justice from the authorities, but the campaign against them gathered strength as their case became more and more hopeless and the sailing of the *Baltic,* which left Liverpool on February 3, 1858, was the last of the Collins Line. After that the ships were laid up in New York.

Any hope that the service could be restarted was destroyed when the Congress of 1858 reversed the whole United States mail subsidy policy and instead of the subsidy paid the lines by the sea postage only, completely destroying American steam shipping on the North Atlantic. There was a big section of opinion which frankly considered that it was wisest to get the mails carried by the cheapest possible means, irrespective of flag. The strength of this opinion lay in the South, its principal sponsors being Senators Davis, Hunter, Mallory, Mason, Benjamin and Toombs, all of whom later held the highest offices in the Confederacy.

So perished the Collins Line. It had not paid a single dividend, but it had added enormously to the prestige of the Stars and Stripes at sea. Needless to say, the British companies were delighted at the end of such formidable competition but even then, when commercial feeling ran very high, there were many who were fair enough to deplore the circumstances which forced the company out of business and the way it had been treated by the United States Government.

It is interesting to turn aside from chronological history to trace the after careers of these Collins ships, which had some considerable difficulty in finding purchasers. The *Adriatic,* which was undoubtedly the best of the five, was finally bought by the Galway Line, for although they realized that she was a very expensive ship to run, they were in desperate straits over the terms of their contract and she was the only ship which contrived to satisfy the assurances they had given the Government. When they finally had to give up she was laid up at Southampton for a spell and eventually sent out to Bonny on the West African coast as a storeship, where she literally fell to pieces in 1885.

The *Atlantic* was laid up at New York until the United States Navy Department took her up as a transport in the Civil War and then returned to her berth. In 1866 she was brought out to run for a while under the flag of the North American Lloyd Company and was then broken up at Cold Spring. The *Baltic* was also used as a transport, one of her first jobs being to carry Major Anderson and the surrendered garrison of Fort Sumter to New York. She also ran in the North American Lloyd service but instead of being broken up when that collapsed she was made into a sailing ship, after which she had some very fast passages to her credit on the Californian wheat trade. Finally she passed under the German flag but was so badly strained on a voyage to Boston that she was broken up when she arrived there in 1880.

It was most unfortunate for American shipping that the Collins Line collapsed just when it did, for 1856 was a year of great effort by the European companies. The Cunard Line could not claim to have had any success in their efforts to beat the Collins ships with the *Africa, Asia* or *Arabia*, but it was a different tale when they brought out the *Persia* at the beginning of the year. They realized that they would never beat the American ships by building wooden paddle vessels, so the *Persia* marked the introduction of iron into the mail fleet. It was a great pity that their attention was centered so completely on the Collins Line that they forgot the immense strides that the Inman Company was making, otherwise they might have gone the whole way and made the *Persia* a screw ship.

As it was, she was one of the most beautiful as well as one of the most successful paddlers on the North Atlantic. She came from Napier's yard on the Clyde and had a long clipper stem and two perfectly proportioned funnels between two masts. Her dimensions of 376 by 45.3 by 31.6 feet depth of hold gave her a gross tonnage of 3,300, while her passenger accommodation was the finest yet put afloat and her engines of 3,600 horse power gave her a speed of 14 knots. But they could only do this by a colossal coal consumption and it was said that it took six tons of coal for her to carry one ton of cargo from Liverpool to New York.

But her passage of nine days four hours forty-five minutes, logged in July, 1856, at an average of thirteen and one-fourth knots, took the Blue Ribbon from the Collins Liner *Arctic* and that was all that the Cunard Line really cared about.

Her command was given to the famous Captain Judkins, who was a rare character in his way, and showed it in 1858 when the *Persia* had the misfortune to discover a smallpox patient among her westward passengers. The quarantine officers at New York gave very strict orders that no one should land from the ship, but in spite of the warning shouted out to him a customs officer insisted on boarding her and then attempted to leave her again. Captain Judkins promptly detained him and insisted that he should remain on board all the time the ship was in quarantine. He was arrested under the customs law but the Grand Jury immediately threw out the bill and New York at that time was so scared of smallpox that there is no doubt that they earned the gratitude of the city for doing so.

The Inman Line put the *City of Baltimore* and *City of Washington* in service, the former after some delay, owing to French transport service. They were of the usual Inman type, with a gross tonnage of about 2,470 and engines of 500 nominal horse power. Although she never actually won the Blue Ribbon the *Baltimore* was a very fast ship, her day's run of 390 miles being a record, but the *Washington* is remembered chiefly by her extraordinary and continued bad luck.

On the Continent also, matters were developing rapidly. Herr H. H. Meier, one of the principal merchants of Bremen, completed the plans that he had been maturing for several years for founding a regular steamship company between Bremen and the United States, the concern which afterwards grew into the North German Lloyd. He began by making inquiries in 1853 and by the following year he had the organization completed in his mind, practically in the form which was afterwards adopted. But getting the necessary capital was a more difficult matter and it was not until the summer of 1856 that he went into the matter seriously, first by himself and then in conjunction with a Berlin merchant named Eduard Crusemann.

They began by combining three small steamship companies which ran on the River Weser, the Weser Hunte Company, the Unterweser Company, and the Oberweser Company, together with the Oberweser Insurance Company. The capital was four million thaler in gold, and the articles of association read that the purpose of the concern was to establish regular steamship connection with European and transatlantic lines, to maintain and extend steamship traffic for persons and goods, to maintain and extend the tug service for river and ocean-going steamers on the Weser and its tributaries, and to carry on insurance business. The Bremen Senate approved the charter of the company on December 8, 1856, and operations started at once.

The Weser Hunte Company had, in addition to its steamers, valuable quays and warehouses in Bremen, while the Unterweser Company possessed tugs and lighters and the Oberweser the single steamship *Werra*. It was sufficient to start with and a preliminary service to England was begun with the steamers *Adler, Moewe* and *Falke,* while the necessary transatlantic steamers were ordered, the *Bremen* and *New York* of Messrs. Caird and Company of Greenock, and the *Hudson* and *Weser* of Palmers on the Tyne.

The Belgian Atlantic Line of steamers, intending to maintain a service from Antwerp to New York by way of Southampton, made a very inauspicious start when they dispatched their first steamer, the *Belgique* for New York at the beginning of 1856. She was an iron screw steamer built at Amsterdam, having a gross tonnage of 2,190 and engines of 500 horse power, but although it was stated in her advertisement that she was classed A.1. at Lloyd's this proved to be untrue.

There certainly would have been trouble at Lloyd's had she actually been given this classification, for although she was quite a good-looking ship, her performances at sea were appalling. Entering Southampton on her first call she ran ashore at Hamble but was salved without difficulty. It then proved that two of her four boilers were very leaky, but these were repaired and, it being taken for granted that she had suffered no damage by her stranding, she proceeded. When about one hundred miles west of the Lizard it was discovered that there were eighteen inches of water in the hold and that three of her pumps were choked so badly that she was in danger of foundering. She put back to Plymouth, where her passengers — she only had one in the first class, eight in the second and twenty-four in the third — were offered their money back and three pounds a head compensation if they would forego their passage. Apparently they still had faith in her and she started out once again, only to spring a leak seven hundred miles west of the Lizard and come racing back. Before she could sail again her owners were compelled to strengthen her hull considerably with stringers and at the same time see to her riveting and caulking, the latter process having been carried out with lead when she was built.

After a thorough overhauling at Southampton the *Belgique* finally left on August 30, 1856, for Antwerp, having made 10.192 knots on trial and having been strengthened very considerably. She sailed on her second voyage in October, having on board two hundred twenty passengers from the Scheldt and picking up thirty more at Southampton.

The second steamer of the Belgian Atlantic Line was originally named *Constitution,* built at Amsterdam in 1855, with dimensions 280.7 by 37.2 feet beam, giving her a gross tonnage of 2,160. She had engines of three hundred nominal horse power and accommodations for forty first-class and five hundred steerage passengers. Before she sailed on the Atlantic she was sent across to Hartlepool for an overhauling in order that the failings of the *Belgique* might be rectified, and while there was renamed *Princess Charlotte,* a name which she bore until she was rechristened *England* in 1862.

The third unit was the *Leopold I,* which was built by the Cockerill Yard at Antwerp in 1856, a ship of 2,028 tons with two-cylinder vertical engines of 300 horse power. She had a very short career on the service, for she took her first sailing in March, 1857, and was sold to British owners in October, later being renamed *Scotland.*

In 1856 the Allan Line added the *Anglo-Saxon* and *North American* to their fleet, improvements on the pioneer four in size and also in the fact that their saloons were put on deck after the latest Cunard fashion instead of being built into the hull. They had a gross tonnage of 1,715 and in general design were very much like the Inman ships on which they were modeled. The *Anglo-Saxon* was a particular favorite and lowered the Canadian record in 1859 to nine days five hours.

The fleet gave the company an opportunity of running a regular fortnightly service, the ships sailing from Quebec every other Saturday and from Liverpool every other Wednesday. The westbound boats nearly always arrived at Quebec on Sunday and considering their small size they kept remarkably good time. The first-class fare was eighteen guineas westbound and eighty dollars eastbound, so that the former Canadian practice of sailing by the New York steamers lost a good deal of its charm on account of the higher rates. At the same time the organization which had been carefully built up in Canada proved very successful in getting the Allan ships full cargoes for practically every voyage. It was the danger of the St. Lawrence route which proved the greatest handicap to the company, for several ships were lost and most of these were uninsured, owing to the high rates demanded by Lloyd's.

Ever since he first inaugurated his steam service to the St. Lawrence, Mr. Hugh Allan, the head of the Line, aimed at a weekly schedule and this was finally arranged. It was not easy on account of the financial position of the Canadian Government but they were eventually persuaded to grant a subsidy of two hundred and eight thousand dollars per annum, four thousand per round voyage. Hugh Allan was a rough customer who was used to getting his way, as he did in this case, but only at the cost of alienating his Canadian partners who withdrew from the business. Although subsequent events proved that Allan was right and that he was fully justified in starting the service, its early history was certainly in favor of the objectors. There was a financial panic in 1857 which, in addition to crippling the American services, hit Canadian trade very hard and the passenger and cargo returns of the company were very disappointing. Finally the Canadian Government was persuaded to double the subsidy, but only on condition that the company submitted to innumerable regulations and restrictions which handicapped them badly and which proved very difficult to end.

One of the victims of the 1857 financial panic was Enoch Train, who had done so well with the White Diamond Line of sailing packets since he commissioned Donald McKay to build the pioneer *Joshua Bates*. The remnants of the concern were bought by Messrs. Thayer and Warren, which eventually grew into the Warren Line of steamers which is now part of the Furness Withy combination.

The remnants of the packet fleet — the *Plymouth Rock, Washington Irving, Anglo-American, Anglo-Saxon* and others — were transferred to the Warren flag but that company was not content to carry on with them for long and it was among the first of the American concerns of its type to turn to steam. Its first steamers were the *Propontis, Bosphorus, Delaware, Meletia* and *Peruvian,* carrying big cargoes and a large number of emigrants.

The sudden reversal of the United States postal subsidy policy, coupled with the financial crisis, was fatal not only to the Collins Line but also to the Ocean Steam Navigation Company which by then was getting into an excellent position. The loss of two hundred thousand dollars per annum for the two ships made it obviously impossible for them to be run at a profit and as the North German Lloyd was attracting the attention of German investors for a transatlantic service the German States refused to sink any more money in the concern. Accordingly the two ships were sold for forty-six thousand dollars, after having cost five hundred and seventy-nine thousand, and went to the Pacific, the *Washington* being broken up in 1863 and the *Hermann* being lost on the Japanese coast six years later. The German State governments received back from the liquidators about one third of the money that they had put into the company.

In spite of the dismal failure of the first effort to establish a mail service between Galway and the United States, and the fact that all the Atlantic Lines were being hard hit by the slump, there were many who were undeterred, and among these was John Orrell Lever of Manchester who set about preparing for a new service in 1857, for which special tonnage was to be built. His plans did not mature until 1859 and are mentioned in their place.

In 1857 the Inman Line, after a good deal of careful consideration, decided to change their terminal port in the United States from Philadelphia, at which they had started operations, to New York. Naturally this made the already keen competition even keener, and there were and still are many Americans who considered it a disadvantage to the nation to have one port the gateway through which practically the whole of the new population entered the country.

After trying to maintain a service both to the United States and

Canada with only two steamers, the Anchor Line decided that they really had to branch out and in 1857 had the 1,250-ton steamer *United Kingdom* built for their Atlantic service. As soon as she was completed she was taken up as a transport to the Indian Mutiny, but when she was finally returned to her owners she proved quite a successful vessel for their unpretentious trade and in 1860 was joined by a sister, the *United States.*

After a good deal of preparation the North German Lloyd finally got its plans completed for the Atlantic service and on June 19, 1858, the first of the quartette that had been specially designed for the service, the *Bremen,* was dispatched to New York. Her dimensions were 334 by 42 beam, giving her a gross tonnage of 2,674 and in addition to her passengers she had accommodation for 850 tons of bunker coal and 1,000 passengers.

The North German Lloyd house flag which later became so familiar was inaugurated on this occasion and Herr Meier took the opportunity to explain it. He pointed out that it was the traditional key of Bremen crossed with an anchor and surrounded with an oak wreath. "The anchor is a sign of our hopes that the key will open up for us the traffic roads which we will hold with German perseverance, loyalty and manly vigour."

The Lloyd Company had gone to infinite pains to get the best tonnage for their purpose, and although the *Bremen* was not large she was up-to-date and proved herself an excellent seaboat. Her maiden voyage lasted fourteen days, with bad weather practically the whole way across. Bremen was taking a big risk over the venture and the absence of the Atlantic telegraph delayed the news of her arrival. It was dispatched by an English steamer which was leaving New York as she arrived and was telegraphed from Liverpool, reaching Bremen just as the *Bremen* sailed on her return voyage, which lasted twelve days five hours. The *Hudson, Weser* and *New York* were soon in the service which was maintained as a regular fortnightly one. It catered principally to the emigrant traffic westwards, but eastward it was very popular with American shippers in their rapidly increasing business with Germany, the associated Oberweser Steamship Company taking the goods into the heart of the country from alongside the steamer.

But the rosy prospects of this excellent beginning did not last long. The fleet of four ships was only just sufficient to maintain a fortnightly schedule; trouble for any one of them was a disaster. And trouble soon began to come in plenty. The *Hudson* started running in August, and was so badly burned in Bremerhaven in November that what was left of her was sold to a Newcastle firm. In December the *Weser,* westward bound, encountered such a severe storm that she was forced to return to Queenstown and it was decided that she should be sold. Finally, early in the New Year, the *Bremen* broke her crank shaft and had to be laid aside for six months while a new one was being forged, leaving the *New York* to carry on by herself as best she could.

This forced the company to borrow a big sum at six per cent., which would have discouraged most men. But Meier's reference to German perseverance was not an idle boast and the company had been promising so well when disaster overtook it that they hung on. Then the United States Postmaster General promised it the American mails to England and later the British Post-office gave it a share. The directors felt that they were fully justified, but there were shareholders and creditors who were not so confident and the Darmstadt Bank demanded that the company should redeem one million thalers of its shares, which they were willing to let go at a discount of seventy-two per cent. The whole thing had to be done in a hurry, but as the directors had forty-six thousand pounds in hand through the sale of the *Weser* at Queenstown they decided to act on their own responsibility. Before the annual general meeting could take place the shares had gone up very considerably, so that there was no difficulty in getting the approval of the shareholders and the company was saved.

In contrast to the Lloyd's success, the German Kunhardt Line was a venture with a very short life which ran for a brief period in 1858.

France had allowed herself to drop right behind Germany, but now made preparations to move. Whatever faults the Emperor Napoleon III may have had as a soldier and a ruler, he was certainly genuinely enthusiastic over shipping and had a great desire to increase the overseas trade of France. He studied the question carefully and it was principally due to his personal efforts that a subsidy scheme was evolved. On the North Atlantic this showed its first results in February, 1858, when he came to an agreement with a French firm named Marziou to maintain a service from France to New York and the West Indies. Unfortunately money was difficult to obtain and they had to abandon the contract, which was afterwards taken up by the Companie Generale Transatlantique.

About this time the keenest interest was being shown in the Atlantic Blue Ribbon from Liverpool, but nobody took any notice of the Southampton run. The Hamburg American Line saw in this an opportunity of directing attention to their steamers, which still formed a very infant line and which in addition appreciated the possibilities of the North German Lloyd, and accordingly full publicity was given in 1858 to the fact that the *Hammonia* had reduced the run from Southampton to New York to thirteen days one hour and from New York to Southampton to twelve days six hours twenty minutes. In England it aroused little interest, but the Americans took notice and the Continental countries were enthusiastic.

The Hamburg Company was steadily progressing, but their luck was not all good. Just when they wanted tonnage most their steamer *Austria* had a very unfortunate and brief career, for her delivery by her Clydeside builders was delayed owing to her being taken up by the British Government as a transport to the Indian Mutiny, and she had not been on service many months before she was burned in September, 1858. The Continental emigrants that she and her consorts carried were not noteworthy for their personal cleanliness and it became necessary to fumigate their quarters at least once during the voyage to avoid trouble with the United States authorities. In the case of the *Austria* they were doing this with burning tar when it capsized on to the deck and soon the whole ship was ablaze. Of the five hundred and sixty people on board, four hundred and ninety-two lost their lives, but the disaster led to better measures being taken in the future.

A very great difference was made to all the British companies by the establishment of the Royal Naval Reserve in 1859. This applied particularly to the big Atlantic lines, for their well-trained personnel, serving in the same ship trip after trip nearly as well as the modern continuous discharge men, were what the Navy principally aimed at. In those days the Press Gang was still legal, although it had not been considered politic to employ it during the

Crimean War in spite of the shortage of seamen, but it was strongly felt that public opinion would not permit it to be used again and accordingly the Admiralty began to consider how it could get trained seamen in war time. In 1857 the Board of Trade had appointed a Committee of Manning, and fortunately among its members was Admiral Sir B. J. Sullivan, a naval officer who not only understood the Merchant Service but had the greatest sympathy with its people.

It was very likely due to his knowledge, and a curious mixture of tact and force, that the Royal Naval Reserve was established with the idea of keeping ready for naval service a number of prime seamen from the Mercantile Marine, paying them enough to make it worth their while and giving them sufficient training to permit them to drop into the crew of a man-of-war without awkwardness.

To begin with, it was only the lower deck ratings who were desired by the Admiralty, for the large number of half-pay officers available at the end of the Napoleonic Wars appears to have given them the idea that there would never be a shortage in the wardroom. Therefore the officers of the Mercantile Marine were not considered to begin with; only the forecastle hands were roped in on very advantageous terms and the shipowners were willing enough to coöperate with the Admiralty in this matter. Thus the very best class of man was obtained, principally from the Atlantic liners, and with such good material it seems a pity that the Navy did not take pains to give them a better service training than they could obtain in the coastguard ships into which they were drafted for short periods from time to time.

The commencement of Mr. John Orrell Lever's efforts to revive the Galway scheme in 1857 has already been mentioned. He certainly had the courage of his convictions but after the first failure and in the prevailing conditions of the Atlantic market few ventured to support him. In 1859 came a change. There was a big wave of Irish emigration, and interests in Ireland were anxious to have a purely national service, not only to cope with this emigration but also for sentimental reasons. There was a good deal of discussion as to which point on the Western Irish coast would form the most convenient base, Galway and Blacksod Bay being the principal favorites. Galway won the day, and the Royal Atlantic

Steam Navigation Co., generally known as the Galway Line, was founded. A number of English and Irish gentlemen were keenly interested in the venture, but not one of them knew the elements of shipping and some of the leaders had no business knowledge whatsoever.

That did not deter them; they were quite convinced of what they could do and in January, 1859, they offered to carry the British mails from Galway to Boston or New York for a subsidy of three thousand pounds per round voyage. They also suggested that they should carry telegraphic messages from Galway to St. John's, Newfoundland, which was the end of the land line, and maintained that by this means they could reach any point of Canada or the United States within six days of dispatch. It must be remembered that this was before the days of the Atlantic cable, and the advantage of rapid communication to Canada and America was very obvious. The telegraphic suggestion, coupled with the political power of the Irish party in the House of Commons, had more to do with overcoming the opposition of the practical shipping men than anything else, and in April the Government gave them a mail contract which was to start in June, 1860. Their experts quoted the speed of the cross-Channel packets to show that it was quite possible to build four paddle steamers of nearly three thousand tons apiece which would have a speed of seventeen and one half knots in smooth water. This they reckoned to be amply sufficient for the service, in spite of experience pointing out that the Western Ocean was seldom smooth. After a certain amount of difficulty they found two shipyards which were willing to undertake the contract. Two of the steamers were to be built on the Tyne for ninety-five thousand pounds apiece but the yard could not contract to build more and the other two were placed with a Hull shipbuilder for ninety-seven thousand five hundred pounds each. Their performances come into the next chapter.

In the meantime they were anxious to start and chartered whatever tonnage they could get before the agreement was signed, mainly for the purpose of showing that the route was practical. Here their lack of shipping knowledge was a severe handicap. The first sailing was disastrous, for the *Indian Empire* was not by any means a suitable ship for the Atlantic service and her first passage was a fiasco. She left Southampton at noon on the 13th of June and entering the harbor struck the *Marguerite Rock* while in charge of her pilot, in spite of the claims that the promoters of the scheme had made that a pilot was absolutely unnecessary for the harbor. Repairs detained her and she finally left Galway on the 19th of June, having on board only a few passengers and a mail consisting of less than a thousand letters. In mid-Atlantic she was again detained for some time by the fracture of her port piston rod, forcing her to proceed on one engine and delaying her arrival at Halifax until 11 P. M. on the 1st of July. That time certainly did not fit in with the contract that they were proposing, and naturally it was seized upon by their rivals.

The next sailing was by the *Prince Albert,* which left Galway on the 27th of July, carrying one hundred and seventy-two passengers, of whom forty were in the cabin, and arrived at Halifax on the 6th of August and New York on the eighth. Eastward she carried eighty-seven first-class passengers and one hundred and sixty-three third, in addition to rather more than one thousand tons of cargo.

She was followed by the *Propeller* which left Galway on the 21st of August and finally fetched up at Boston on the 3d of September. She left Boston again on the fourteenth and arrived at Galway on the thirtieth, in such a condition that she had to be beached immediately.

Ill luck continued to dog the unfortunate *Indian Empire.* On her second Galway passage she had over four hundred passengers, which should have satisfied her, but it took her from the 28th of September to the 10th of October to reach Halifax. Eastward, no sooner had she left New York, than she came into collision with a brig and wasted two days at Halifax repairing damages. She then sailed again and made a very long passage, the reinsurance rate rising to forty guineas per cent. in spite of the fact that the company announced that she was still detained at Halifax for repairs, a statement which was demonstrably untrue. Her eighty-odd passengers had a very uncomfortable time, for she had to lay to for seven days and she burned not only all the coal that she had on board but also a good deal of her decks, furniture and cargo. Finally she reached Broadhaven on the 27th of November, having sailed from New York on the 23d of October.

The next ship to be chartered was the *Pacific,* whose first westward passage took thirteen days with three hundred and thirty-seven passengers, and which contrived to sink a number of lighters while leaving New York at the beginning of a fifteen-day homeward passage. This ship is, of course, not to be confused with the ill-fated Collins liner of the same name. She was an iron paddle steamer built in 1854 for the Sydney and Melbourne Steamship Company, a vessel with a gross tonnage of 1,469 which attracted great attention when she averaged 14.11 knots on trial. She had a very checkered career under several ownerships before she attracted the attention of the Galway Line. No better was the next run of the *Prince Albert,* seventeen days from Galway to New York.

In the steadily increasing prosperity of the Cunard Line at the end of the decade it was a source of great gratification that Queen Victoria honored old Samuel Cunard with a baronetcy in 1859. The story goes that the Government was having a very bad time in Parliament over certain scandals and extravagances during the transport services to the Crimean War and Indian Mutiny, and in the revelations that the Opposition was able to bring forward, the conduct and running of the Cunard ships stood out in sharp contrast with the average. The Prime Minister leaned forward to his colleague, who was defending the Government as best he might, and asked audibly, "Who is this shipowner who did so well?"

"Mr. Cunard, sir, Samuel Cunard."

"Ah, yes, Sir Samuel Cunard, Sir Samuel Cunard," he mused, as though the way it sounded would make all the difference. But it had its effect on the ruffled temper of the house and in due course the promise was honored.

At the same time the Cunard Line took the opportunity of clearing its fleet of a number of smaller vessels, including the *Alps, Andes, Taurus* and *Teneriffe,* when they received a most advantageous offer for these ships from the Spanish Government who planned a State service between Cadiz and Havana and who knew that the delivery date was problematical if they placed the order in Spanish yards. Even without the Collins Line the competition was fierce and the Board were certainly wise in clearing their list of second-rate tonnage.

## *Chapter IV: The Sixties*

After the keen competition and rapid progress made in the fifties, the next decade is apt to appear a little flat, particularly as the American Civil War disorganized ordinary trade and travel; but it is a period of considerable interest to the student. It opened with an atmosphere of uncertainty, for although the Galway Line had already suffered many misfortunes it could not be ignored by any means, and if it did succeed in getting on to its feet it would be a very serious proposition for the established companies.

But events proved that it had only yet touched the fringe of its misfortunes. Considering the clauses of the company's agreement with the Government, time was absolutely essential, but none of the ships were delivered in anything like contract time and the company had to charter an old liner named the *Parana* from the South American service to take the first sailing. Instead of reaching St. John's in six days she took over seven and a half, and at the same time came the news that the first of their own steamers, the *Connaught,* had made only thirteen knots on trial. Their contract forced their hand and they had to accept her with many misgivings, but her first voyage was favored with good weather and they congratulated themselves that she was only a day overtime. On her second voyage came disaster. She left Galway on September 25, 1860, with over four hundred passengers. She encountered heavy weather from the first and on the sixth of October she took a heavy list to port. Next morning the engines stopped and steam could not be raised for the pumps, so that her position soon became critical. To make matters worse fire broke out, commencing in the stokehold, and spread so rapidly that it was soon obvious that the ship was doomed. It was not until past noon, when the situation was really critical, that the American brig *Minnie Schiffer,* of one hundred ninety-eight tons, hove in sight, and the risky work of transferring passengers and crew commenced. It was not finished until nearly midnight, Captain Leitch being the last to leave, and when the brig set sail again with a company that looked like starving before she reached port the *Connaught* was a mass of flame from stem to stern and was obviously doomed.

In spite of such a blow the directors carried on and they must certainly be given credit for courage. The chartered *Prince Albert, Golden Fleece* and *Parana* continued to run somewhat irregularly, but they were not in any way suited for the service and it was really a relief to the company's finances when they were returned to their owners in 1861. The Collins' *Adriatic* was bought from the liquidators and was far and away the most successful ship of the whole fleet. When the *Hibernia* was delivered she encountered heavy weather on her way round from Southampton to Galway and had to put into Cork, badly strained, showing again that in the effort to obtain speed these ships had been built with scantlings that were far too light for Atlantic work. The damage was so great that she was forced to abandon the sailing and go up to Liverpool to be repaired at a cost of about thirty thousand pounds. When the *Columbia* was finally delivered, something like a year late, she took seventeen days on her maiden voyage instead of seven and in doing so she damaged herself so severely that she also had to be very largely rebuilt. Small wonder that the company was a failure, even if its original plans had been well founded.

Political considerations made the Government very lenient over the broken terms of the contract, but it was obvious that the company could not go on and it went into liquidation with very heavy liabilities. Not only were innumerable small shareholders ruined, but the big shipping bankers, Messrs. Overend, Gurney and Company were also very heavily committed and were forced to suspend payment, ruining a number of Liverpool shipping men by doing so.

The accidents to the Galway ships put an added value on the strength of good iron construction and the screw propeller, and those who had first followed that policy lost no opportunity of advertising the fact and profiting thereby.

Before going into the affairs of the established companies it is opportune to mention a vessel which saw service on the North Atlantic and has perhaps been given very much more notice than she really deserves, the *Great Eastern,* which took her maiden sailing from Southampton on June 17, 1860. Her description is included in every book of history of the sea, an over-all length of 692 feet by a beam of 83 for the hull proper or 120 over her sponsons with a depth of hold of 58. According to the old builders' measurement her tonnage was 22,500; nowadays she would have been 18,914 gross and 13,343 net, her load displacement on 30 feet draught being 27,384.

She is always regarded as the biggest failure in shipping history, but there is a tendency to forget that she might well have been a success had she been used on the service for which Brunel designed her. In those days there were few coaling stations on the Eastern and Australian run and his idea was to give her such a bunker capacity that she could run out to Colombo with a large number of passengers and a huge cargo, and there distribute to the smaller ships that would run to Calcutta, Australia and the Far East. Unfortunately her delayed launching cost so much money that the company that was formed for the purpose of running her in that way failed and she was purchased by the Great Ship Company who proposed to run her on the North Atlantic, a service for which she was unsuitable in every particular.

After a good deal of advertisement in the Press, and considerable bad advertisement in the shape of accidents, she finally sailed from Southampton in June and did the voyage to New York in 11 days 13 hours 15 minutes, a mean speed of 11.36 knots, although in one day she averaged 13.1 with a run of 333 miles. Although she secured a certain amount of cargo, only thirty-seven passengers could be persuaded to book on the outward run and between sixty and seventy to the eastward, so that her owners had to face a heavy loss and the one hundred that she carried on her second westward passage did not do much to square their accounts. Her most crowded passage only ran to about four hundred passengers and on the North Atlantic she never succeeded in paying her way.

Meanwhile the Inman Line began to go well ahead. In 1860 it increased its transatlantic service to a weekly one and found that this obtained so much support that three years later it was possible to increase it again, this time to three sailings a fortnight; and from 1866 onwards the ships ran twice a week through the busy months and three times a fortnight in the winter season. The company had taken the Collins Company's sailing days and

American mail connection when that concern failed in 1858 and found them both a good investment.

In the meantime the Cunard Company, relieved of the threat of the Collins Line, was fighting hard for its old position. Numerous minor changes and improvements were made — not all of them very successful — and the question of new tonnage was carefully considered.

The first move was the purchase of a ship which, while she was noteworthy as being the first iron screw Cunard mail liner, was one of the most unsatisfactory vessels they ever had. It is the old story of the unsuitability of a ship built for one trade being run on another, for when the European and Australian Royal Mail Company built the *Australasian* on the Clyde in 1857 she was regarded as a magnificent vessel. When that concern collapsed the Cunard bought her and after making several alterations renamed her *Calabria*. She was a remarkably speedy vessel in smooth water, but on the Western Ocean she was unlucky in getting the conditions she wanted with the result that she rolled like a barrel and vibrated excessively. She was also constantly in trouble with minor mishaps and was anything but popular on the service.

But the main change was in the control of the company.

Mr. George Burns retired, handing over his interest to his eldest son, Mr. John Burns of Castle Wemyss. The father retired to Wemyss Bay and spent the closing years of his life — he did not die until June 2, 1890 — studying scientific and religious works. To the very last he read and wrote without the aid of glasses and at eighty-four his mind was as clear and his opinions were as pugnaciously vigorous as when he was a young man. He had been made a baronet in May, 1889.

Mr. John Burns, who was afterwards Sir John and finally Lord Inverclyde, was a remarkable man and his brilliance and sound knowledge had a lot to do with the success of the company. He was born in Glasgow in 1829 and had naturally been interested in transatlantic shipping from the first. He was, however, not content to take it in its narrowest sense and was an authority on such matters as the training of mercantile seamen and the adaptation of liners for cruiser purposes in wartime.

In 1860 there was still good opportunity for sailing tonnage in the Canadian passenger trade and William Thomson of Dundee took advantage of it with the *Strathcona,* the biggest ship of his fleet. His father had been a Fifeshire man who commanded one ship and managed others, and when he was drowned in 1817 the family retired from shipping for the time, to take it up again in the forties. To begin with, they kept their little brigs and barques employed principally in the Mediterranean trade, but now Mr. Thomson decided that there was an opportunity on the Canadian run, and the Thomson clippers soon made a name for themselves. It may be mentioned that this line is now the Cunard Canadian service.

He was assisted by the action of the Anchor Line. Their steamers had been running from Glasgow to Canada in the summer and to New York in the winter, but there was no doubt that as the emigration market was then, there were much greater possibilities of profit in the latter trade and accordingly in 1861 the Canadian service was abandoned altogether and the Anchor Line on the Atlantic concentrated their efforts on the New York run.

Having done this, the Scotsmen were determined to make the most of things and in 1862, in spite of the discouragement and disorganization of the American trade caused by the Civil War, improved the Atlantic tonnage by the construction of the *Caledonia* of 1,348 tons. She was wrecked almost immediately and was replaced by two sister ships in the following year. They were the second *Caledonia* and the *Britannia,* ships of 2,093 tons, with a speed of 10½ knots and accommodation for 60 saloon and 550 third-class passengers. They were a great improvement on the company's tonnage of that day, ships built on the Clyde to practically the same design as the contemporary Inman liners, and were very successful.

The withdrawal of the Anchor Canadian service offered opportunities to their old steam rivals as well, and the Allan Line people were not slow to take them by improving their material. In 1861 they built the *Hibernian* and her sister ship the *Norwegian,* which were very popular packets and which have their place in the history of naval architecture on account of their being the first spar-decked steamers to be put on the Western Ocean. The usual deck houses were covered by a long deck carried out to the side of the ship and plated up, making them more comfortable and also safer. For some reason the authorities would not agree to them for several years and it was only after long argument that Allan's got their way and such ships were permitted on the mail services. Surface condensing engines were another innovation in these ships.

Being surplus to the Cunard requirements with their new tonnage, the *Jura* was chartered to the Allan Line for the Canadian run and in the summer of 1861, Allan's being very hard hit through numerous casualties, she was purchased outright, to be followed by the *Damascus* which was renamed *Corinthian.*

When the Civil War cut off supplies to the cotton area of Lancashire the greatest distress was caused, which was only partly relieved by the action of the Cotton Coöperative Relief Committee who started a big scheme of assisted emigration to Canada, a scheme in which the Allan Line took a principal part.

Sailing ships were not yet quite dead even on the New York run, although very nearly so. In 1860 Williams and Guion put into the packet service the clipper *Adelaide*, which had been built for it in 1855 but had been transferred to the Californian trade on account of the excellent opportunities that it offered. In this she had made a great reputation for herself for speed, as well as for being a man-killer, and on the North Atlantic she also proved a flyer. She is the subject of any number of seamen's yarns crediting her with a wonderful speed, and although she certainly was a fast ship and remarkably regular in her passages, the claim that she crossed from New York to Liverpool in twelve days eight hours in 1864 cannot be substantiated, although it is established that she did the passages in under eighteen days during that year.

The continental nations were also very active in the early sixties. In spite of Spain's huge colonial empire, steam shipping made a poor start under her flag, and it was not until 1861 that her first really noteworthy shipping company was started. In this year Señor A. Lopez started a service from Spain to the colonies in the West Indies, receiving a subsidy from the Spanish Government. They do not appear to have been very sanguine as to the success of their experiment when they granted this assistance, but he succeeded far better than they had hoped and eventually his service spread all over the Spanish Empire, later in the famous Compañía Trasatlantica.

The French made preparations to enter the Atlantic service on a proper scale in the same year, but as nothing definite was done until 1864 the incident is mentioned in its more appropriate place.

In Germany affairs were also moving rapidly. From the very beginning of their transatlantic steamships there was a rivalry between the North German Lloyd and the Hamburg American Line, a rivalry which still exists and which, in spite of repeated attempts at agreement and fusion of interests, is constantly threatening to burst into flame. It was not until December, 1861, that it was even possible for the directors of the two companies to reach an agreement on sailing days, until then both had been wasting opportunities and money by stubborn obstinacy.

By that time the Lloyd was improving its fleet considerably. The *Hansa* was ordered in Britain in 1860 and the *America* in 1861, although it was necessary to raise a further debenture to pay for them. The directors knew perfectly well that they were running a risk, for the American Civil War had practically stopped the emigration on which they depended very largely for their passenger business, except as regards German volunteers going to join the Federal forces. However, they built the ships and did not stint the money on them, giving them a speed that made them attractive to business men who were constantly crossing in connection with the supply services. It was this excellent speed which secured for the Lloyd a renewal of the United States mail contract in 1863.

In the meantime the docking facilities in New York had proved none too big for the company's steamers and in that year they settled on Hoboken, on the right bank of the Hudson River, as their base. First of all they leased the property but later bought it outright so that they were able to construct their piers in accordance with their own ideas.

Considering the magnitude of the struggle, it is surprising that the Civil War did not make more apparent difference to the Atlantic Ferry. The Federal Government found employment for a number of American Atlantic liners as troopers or warships, but most of them had already been withdrawn from service when the subsidy laws were repealed. Had the present habit of crossing the Atlantic for pleasure been general in the sixties there is no doubt that the difference would have been more obvious, but in those days ocean travel was practically confined to business purposes and the fact that those purposes had changed did not show on the surface.

But the unhappy *Trent* affair, although now deeply regretted by both parties and best forgotten, must be mentioned as it caused unusual employment for several British liners and gave trooping experience that was quoted as a precedent for many years afterwards.

When troops were hurried to Canada two Cunard liners were taken up. The *Australasian,* not yet renamed *Calabria,* received her orders on the fourth of December, was fitted out by the tenth, bunkered on the eleventh and embarked the First Battalion of the Rifle Brigade on the twelfth to sail on the thirteenth for Bic. The *Persia,* under Captain Judkins, received her orders on the fifth, embarked a battalion of the Guards on the fifteenth and sailed on the sixteenth for Bic. The *Persia* arrived first, just when the ice was beginning to form badly; Judkins landed all his troops but had to run to sea hurriedly, minus his boats. The *Australasian* was not so lucky, got headed off by the ice and had to land her troops at Halifax.

The agreement with the Admiralty was in the neighborhood of fifty thousand pounds, but a ten thousand pound premium if the troops were landed according to program.

When Lord Palmerston, then Prime Minister, was approached, he remarked, "You can claim nothing as you did not land the Guards and Rifles at Bic according to contract, but, inasmuch as you put the Guards ashore there, we might give you five thousand pounds." Then, after a moment's hesitation, he went on, "No, gentlemen, you shall have the ten thousand pounds. You did your best and I like pluck."

Shortly before this incident occurred, when the volunteer movement in Britain was going through a decided revival, the directors of the Cunard Line decided to enroll and maintain at their own expense a complete regiment of volunteers, five hundred strong, which was commanded by Mr. McIver with the rank of Lieutenant

Colonel and which was supposed to be one of the smartest regiments in the volunteer force.

It has already been pointed out how a very big difference had been made in the personnel of the British Merchant Service at the end of the last decade by the establishment of the Royal Naval Reserve for suitable ratings, but not long after the idea had been started it was appreciated that the officers would be just as valuable to the Navy if they received some sort of a training in peace time. Accordingly, in 1861, the Royal Naval Reserve idea was extended to the officers.

In the early days, at least, a good deal of faith was placed in the officers' keenness and certainly if they had not been very enthusiastic they would never have served under the conditions which the Admiralty offered. The advantages to them were very small and their chances of going into the regular service were negligible. They were, in fact, regarded with a good deal of suspicion by the old-fashioned naval officer who found it impossible to believe that a liner man could be anything like his equal in skill or social status. The result was that a captain of a first-class Atlantic liner, as fine a seaman as could be found anywhere, usually had to be content with the rank of sub-lieutenant and the second cuff-stripe of a lieutenant had to be the limit of his ambition.

In spite of their poor treatment, the officers were not to be discouraged and immediately suggested that guns should be fitted into liners and that the ratings on board should be drilled on the voyage, a proceeding that would certainly have given infinite amusement to the passengers had the real old naval gunnery instructors been employed. The root idea was that the ships could be immediately commissioned as privateers with the very minimum of delay, but soon after the scheme was put forward the maritime powers definitely agreed to abandon privateering, so that there was nothing left in it.

But the real utility of the Royal Naval Reserve remained and any number of first-class sailormen were genuinely enthusiastic about the idea. One of the first commissions to be granted, that of Honorary Lieutenant, was to Charles Judkins, the famous Cunard captain, who received it in February, 1862. But in those days the seniority of a Lieutenant of the Royal Naval Reserve was governed by the date of his master's certificate, so that Captain Judkins' actual seniority was 1846, which was long for a lieutenant even in those days. The fact that he had to serve under any junior Royal Naval Lieutenant showed the genuine patriotism which influenced him and his messmates in taking up the Royal Naval Reserve at all.

Much of the success of the Inman Line was due to the economy of their ships, for just as they had been the first to throw themselves whole-heartedly into the principle of employing iron screw ships, so they believed in keeping themselves abreast of every machinery development which made for economy. After being dropped for some years the surface condenser attracted the attention of engineers again about 1860 and the Inman Company fitted it in their first *City of New York,* which was built in 1861 contemporaneously with the Allan ships similarly fitted. She had horizontal two-cylinder trunk engines, the dimensions being sixty-nine inches by thirty-six, which worked up to about fifteen hundred indicated horse power and were regarded as being conspicuously economical at that time.

Every new ship on the Atlantic attracted her quota of interest and attention, but the stir caused by these vessels was as nothing to that in the beginning of 1862 when two new Cunarders came out, one the very last word in paddle ships and the other their first effort to apply the screw system to a mail ship built for their service. The paddler was the famous *Scotia; China* was the name given to the screw ship.

The Cunard Company was not by any means enthusiastic about the idea of abandoning the paddle, and it was only the increasing success of the Inman Line that made them build the *China.* On this account they have often been accused of undue conservatism, but it must be remembered that they were still very closely connected with the British Government, which in matters mercantile followed the advice of the Navy, and there were many naval officers, particularly the old-timers, who were generally given the jobs connected with shipping, who were still irrevocably wedded to the old system. The comparative figures of the *Scotia* and the *China,* however, gave them no excuse for maintaining this attitude and the screw was firmly established.

The gross tonnage of the *China* was 2,529 against the 3,871 of the *Scotia*. Their normal sea speed was practically the same, 14 knots, although the paddler could be worked up far more, but the *China* required 2,250 indicated horse power to get it and the *Scotia* 4,900. The former's coal consumption was 82 tons per day, the latter's 164. The screw ship was only able to carry 1,050 tons of cargo against the 1,400 of the paddler and although the *Scotia* carried 300 first-class passengers against the 160 of the *China,* that ship had 771 third-class in addition. In spite of their conservatism, the Cunard directors had been forced to realize the necessity of accommodating third-class passengers in their mail ships, but it was not until 1867 that they were all so fitted. Considering her capital and running costs therefore, the *China* was an infinitely better commercial proposition.

In spite of the fact that the *Scotia* was not so profitable as the *China* she was a wonderful ship of her class and was the pride of the Cunard Line for many years afterwards. Captain Judkins was given the command and soon after she was commissioned he lowered the eastward record, which until then has been held by the *Persia.* The westward record remained to the credit of the Collins liner *Baltic*, until 1864, when the *Scotia* captured that as well. She is particularly worthy of attention as being the very last word in Atlantic paddler construction, but she was after her time and only lasted fifteen years on the Ferry, when she was taken off and converted into a twin screw cable steamer, as which she was wrecked in 1904. The *China* was sold out of the Cunard service in 1880, ran for the Spaniards for a short time and then had her engines taken out to become the German four-masted barque *Theodor*. In March, 1906, she disappeared without a trace.

The Inman Line only partially countered the impression made by these two ships by constructing the *City of Limerick*, 2,536 tons, and *City of London*, 2,765 tons. Both of them followed the company's established policy, but the *City of London* was by far the faster ship. Her machinery was unique — invested diagonal four-cylinder simple engines designed by their own consulting engineer. When the ship was lengthened these complicated machines were taken out and replaced by an ordinary trunk engine.

One would have thought that the repeated failures of the Galway suggestion would have prevented the promoters' getting another contract from the Post-office but the Irish influence in Parliament was sufficient to get them another chance in 1863. Warned by experience, however, the Post-office with some difficulty contrived to get in some rather onerous conditions, but although there was a penalty of five hundred pounds provided for every twelve hours' delay in starting the ship, the politicians prevented any exact penalty being laid down for protracted voyages. The subsidy agreed upon was fifteen thousand pounds per voyage for ships of not less than two thousand tons builders' measurement, and a strict schedule was laid down for summer and winter services from Galway to New York and to Boston. The effort came to nothing and is worthy of remark chiefly as another instance of the disadvantage of mixing politics with the shipping business.

More successful and permanent was the formation of the National Line in the same year. The huge volumes of the war supplies purchased in Europe by the belligerents in the Civil War led to a shipping boom, while the fact that the Atlantic Ferry was practically unaffected by the Confederate corsairs prevented the struggle having its normal effect on the passenger business. But nobody expected the resistance of the South to last as long as it did, and in 1863, anticipating a very speedy cessation of hostilities, a syndicate of Liverpool shipping men planned a new steamship service which was to run between the Mersey and the Southern States as soon as peace was declared. A capital of £700,000 was raised without difficulty and the National Steam Navigation Company was formed to build the steamers *Louisiana* and *Virginia*, ships of 3,847 and 4,310 tons respectively, but of comparatively small power. The third ship, 4,276 tons, was provisionally named *Pennsylvania* to equalize things a little, but when the war showed no signs of ending the names were tactfully changed to *Holland*, *Greece* and *Canada* respectively and they went on service between Liverpool and New York. They were intended primarily for cargo and steerage passengers, and when their machinery was planned rigid economy was the main consideration, but in spite of their defective speed they did tolerably well on the business that was left by the Cunard and Inman liners. It was not until later that they struck their extraordinary run of bad luck.

The progress made by the steamship companies which had been specially designed for the carriage of emigrants like the Inman Line, the foundation of the National Line, the fact that sailing ships were not as immune from the attentions of the Confederates as the steamers, and the decision of the Cunard Line to carry third-class passengers in its mail ships gave the sailing packets a very poor prospect and Messrs. Williams and Guion, owners of the Black Ball Line, determined to move with the times and in 1863 entered into an agreement with the Cunard and National lines to supply them with emigrants instead of carrying them in their own sailing packets. This agreement lasted three years, when the company decided that they were making too much profit for other people and entered into the steamship-owning business themselves.

So encouraged were the Cunard people by the success of the *China,* which was built very much on Inman lines, that they ordered an improved edition in the *Cuba,* which was launched in 1864, and they went to Messrs. Tod and McGregor, the Inman builders, for her. She had a gross tonnage of 2,668 and geared oscillating two-cylinder engines of 3,300 indicated horse power with surface condensers. One of her features was that the safety valves discharged waste steam under water in order not to subject the passengers to the unpleasant noise, an idea borrowed from the blockade runners in the American Civil War. On trial she averaged 13.66 knots and was a good economical steamer and popular passenger carrier.

The *Cuba* was followed by the *Java,* for whom the Cunard Line went to Messrs. J. and G. Thomson of Clydebank in 1865. Her tonnage was 2,697, her simple engines 2,650 indicated horse power and she was a development of the *Cuba* design which was frankly not quite as successful, particularly in the matter of coal consumption.

When the Southern States were obviously collapsing in 1864 transatlantic migration began to improve at once, and the companies which had been hard hit took the opportunity to raise their fares where possible. The end of the war in 1865 saw a great revival in migration and all the companies commenced to build new tonnage.

As usual, the directors of the Inman Line had taken a long view of things and were well in the van of the movement, the 1864 addition to their fleet being the *City of Boston,* a ship which followed their usual lines with slight improvements. When she came out she attracted great attention and a very special point was made of her most elaborate safety devices, the hull being divided into no less than six water-tight compartments which most people considered to be quite unnecessary and which made certain parties write to the Press to say that if other shipowners were expected to follow this example they would all be ruined as the ships could not possibly pay. Yet in spite of the precautions taken the disappearance of the *City of Boston* in the beginning of 1870 is one of the unsolved mysteries of the Western Ocean.

In 1864 new competition, destined later to be very important indeed, was started with the decision of the Compagnie Générale Transatlantique to open a New York service in addition to the West Indian runs which it had been maintaining.

The birth of the Compagnie Générale Transatlantique, or the French Line, as it is generally called in the United States, is as interesting as its later history, which is saying a good deal. It was one of the ideas of the Emperor Napoleon III to improve French shipping. He first put the scheme forward in 1857, suggesting services between France and the United States, the West Indies, and Brazil in return for a very generous subsidy. In the following February the American and West Indian services were allotted to the Marzion Company, otherwise the Union Maritime, but their financial arrangements were not sound and they were unable to take advantage of their opportunities. Therefore in 1861 their concession passed on to the Compagnie Générale Maritime, which after some months' negotiations became the Compagnie Générale Transatlantique under the ægis of MM. Emile and Isaac Pereire, well known Parisian bankers who had already maintained a big fleet of sailing ships to the Newfoundland fisheries and the Guano Islands in the Pacific.

The negotiations proceeded slowly, but finally in 1861 it was decided that the company should receive a subsidy of nine million, three hundred thousand francs per annum for the two services, three million to be for the New York run which was to support twenty-six sailings a year at an average speed of eleven and one half miles an hour. Cherbourg was the terminal port first chosen, then Brest and finally Havre.

Both services were to have begun in 1864 but owing to the French expedition to Mexico, the Government asked the company to start the West Indian and Central American service immediately. This was done with a sailing by the steamer *Louisianne,* 1,900 tons, in April, 1862, but the New York service was slightly held up by it.

It was started in June, 1864, by the new iron paddler *Washington,* built by Scotts of Greenock, a ship of three thousand, four hundred tons with engines of nine hundred horse power. She was immediately followed by the *Lafayette,* and three other paddle steamers, *Imperatrice Eugenie,* the first big Atlantic liner to be built in France, *Europe* and *Napoleon III, Pereire, Ville de Paris* and *St. Laurent* were the first screw steamers and they were so successful that several of the old paddlers were converted.

Although he was no longer in active command of the company that bore his name, old Sir Samuel Cunard was still revered as its head and deep regret was felt when he died at the age of seventy-eight on April 28, 1865. He was succeeded in the title by his son Edward Cunard who had been managing the New York affairs of the company, but he only lived until 1869 and was in his turn succeeded by his brother William. Queen Victoria had given Sir Samuel a baronetcy as a reward for the extraordinary efficiency of the Cunard steamers on trooping service during the Crimean War, but that was only one of the things in which his ability and genius was shown. One can understand the shock that his ideas gave to the staid and conservative shipping world when he first put them forward, and how nearly they lost him the support that was essential. But he was right in every particular and without his revolutionary ideas the history of Atlantic steam navigation would have been set back many years. Of them all, the one that had most influence on shipping in general was undoubtedly the construction of sister ships and the very careful blending of improvement and established custom in each successive type.

For some years previously the interests of the original shareholders had been gradually but completely acquired, without any attention being attracted, by the families of Cunard, Burns and McIver.

The Anchor Line had long wished to make their service from Glasgow to New York a weekly one, and with increased emigration this was contrived in 1865 when the new steamer *Hibernia* was launched to run alongside the *Britannia* and *Caledonia,* while the old *United Kingdom* and *John Bell* kept up a less pretentious intermediate service.

The service was again strengthened in 1866 by the construction of the *Columbia* and the purchase of the steamer *Iowa,* which had been built as the *Bellona* for the London and New York Line's service between the Thames and New York by way of Havre. She was a very curious ship, being rigged as a four-masted schooner but with her funnel between the mizzen and the jigger instead of between the main and mizzen as usual. In the following year the *Europa,* very similar to the *Columbia,* was added to the Atlantic service and a call was instituted at Moville to cope with the Northern Irish emigrant traffic.

The Atlantic revival which immediately followed the end of the Civil War was short-lived, as has been every post-war boom in the history of shipping. After one bumper year, 1866 was a very hard one for the companies, for a very severe financial crisis on both sides of the ocean naturally affected both emigration and trade. Yet it was the year chosen for the launching of two new steamship companies, one of them of prime importance.

The manner in which Messrs. Williams and Guion went into the steamship business by means of a passenger agreement with the Cunard and National lines in 1863 has already been mentioned, but three years later they decided to own steamers themselves, as the magnificent emigration organization that they had built up for their sailing fleet was proving most useful in attracting passengers to steamers. Mr. Williams managed the affairs of the company in New York and Mr. S. B. Guion in Liverpool, the company being registered as the Liverpool and Great Western Steamship Company, but always being spoken of as the Guion Line. Nearly all the shareholders were American, but the company was British and as the steamers were built in British yards they would not have been allowed to fly the Stars and Stripes in any circumstances.

Stephen Barker Guion was an American, but he was sent over to Liverpool by his firm in 1851 when the enterprise of the Inman Line threatened the prosperity of the sailing packets in the emigrant business. He was undoubtedly a brilliant man, but he owed a good deal of his success to the splendid reputation which he had built up for himself, and his personal popularity.

He started operations by going to Palmers on the Tyne for the steamer *Manhattan,* an iron screw ship somewhat on the lines of the Inman vessels but rigged as a brig instead of as a barque. Her length was 335 feet, her gross tonnage 2,869 and her machinery a direct acting surface condensing simple engine. She was intended for the emigrant service only and proved so successful that she was soon followed by the *Minnesota, Nebraska, Colorado, Nevada, Chicago* and *Idaho,* most of them round about thirty-five hundred tons gross of indifferent speed but capable of carrying a thousand steerage passengers each, in addition to cargo, and sufficiently numerous to maintain an absolutely regular weekly service. In the later ships the Guion Line made a great reputation for interesting machinery experiments.

The other company was neither so important nor so permanent, being floated as the North American Lloyd by Ruger Brothers of New York, who planned to run a regular service to Bremen by way of Southampton. They bought two of the old Collins liners, one or two miscellaneous ships that were none too suitable for the service, and chartered John Ericsson's famous caloric ship *Ericsson.* Her caloric engines had long been removed and replaced by ordinary steam machinery, but there was no room on the Atlantic Ferry at that date for the wooden paddlers with which Rugers proposed to run their service, so that after a few months it was abandoned, but revived for a short time in 1868. It was a failure then, just as was the company's 1869 experiment of running a service from New York to Copenhagen and Stettin.

The existing companies met all this new competition by the very sensible expedient of improving their tonnage, the Inman Line building the first *City of Paris* and the Cunard Line the *Russia,* both of them famous ships and keen rivals.

The *City of Paris* was out first, being built in 1866. Like most of the Inman ships she was built by Tod and McGregor, her gross tonnage being 3,086 on dimensions 397.7 feet by 40.5 by 26.2 depth of hold. Her engines were constructed by her builders, and were horizontal two-cylinder simple, the dimensions being 82 inches by 42 inches stroke and the nominal horse power 550. Her sea speed was 13½ knots, at which she burned 105 tons of coal per day. She was successful in winning the westward Blue Ribbon in 1867 from the *Scotia* on time only. Her time was 8 days 4 hours 1 minute, which, over a course of 2,700 sea miles meant an average speed of 13¾, but the *Scotia's* record in the previous July had been 8 days 4 hours 34 minutes over a 2,861-mile course, an average of 14. The two ships wrangled over who was the real holder until the matter was put out of all doubt by the advent of the White Star Line, but the *City of Paris* was never in the running on the eastward voyage.

The *Russia* was quite a different type, but was a great favorite both as a Cunarder and later as the Red Star *Waesland*. Her dimensions were 358 by 43 by 28 feet depth of hold, the gross tonnage being 2,960. Later she was rebuilt, reëngined and lengthened, her Red Star tonnage being as much as 4,752. Her engines were 2-cylinder simple, the diameter being 86 inches and the stroke 45. They indicated 2,800 indicated horse power and gave her a steady 13½ knots at sea, 14.908 on trial. In appearance she was a very fine ship, with a particularly pleasing clipper stem and barque rig.

In 1886, the Allan Line, which had bought the Cunard *Jura* and *Damascus* a few years previously, started purchasing a number of well-known Atlantic liners. The first was the Hamburg American *Hammonia* of 1885 which was renamed *Belgian,* followed by the National liner *Germany* which retained her old name, and later by the *William Penn,* renamed *European,* and *Ottawa,* renamed *Manitoban.*

The North German Lloyd, catering particularly for emigrants, was one of the companies which gained most by the revival in migration after the American Civil War. In spite of the trade situation, by March, 1867, this trade had increased so much that the company was forced to increase its fortnightly sailing to a weekly schedule, the steamers *Bremen, New York, Hansa, America, Hermann, Deutschland, Union* and *Weser* being employed.

This service suited the purpose of the United States postal authorities excellently and they renewed the contract for the English-American mail on the condition that the sailing day for New York was changed to Thursday, which gave Americans a third mail departure every week. Tuesday was the day chosen for the embarkation of the westward mails at Southampton.

These mail agreements with the free town of Bremen and the English and American post-offices were satisfactory as far as they went, but it was a patriotic German company and the directors wanted something more from the Fatherland. There was a good deal of opposition to be overcome and it was not until December, 1867, that they contrived to come to an agreement with the North German Confederation for a weekly mail service from Bremen to New York with a call at Southampton. This agreement was honored by the German Imperial Post-office when the Empire was founded in 1871 and continued in force until 1889.

At the same time the Lloyd people started other enterprises which were afterwards to become very important. A separate service between Bremen and Baltimore was inaugurated with a capital of seven hundred thousand thaler, the Lloyd Company holding half and the Baltimore and Ohio Railway Company the other half. As the railway company owned the necessary piers and warehouses at Baltimore it was a most advantageous arrangement and although only two ships were put into service when it started in March, 1868, they soon proved that there was a big demand to be satisfied and the *Ohio* and *Leipzig* were specially built for the service, its capital being doubled at the same time. Soon afterwards the North German Lloyd Line started a new service between the Weser and New Orleans, with Havana as a port of call. The terminal was changed to Galveston in 1884.

At this period the Hamburg American Line was not making nearly as much progress as their Bremen rivals. But they were plodding steadily on with the main New York run, their next type, once again from Caird's yard at Greenock, being the *Cimbria* of 1867, brig rigged with a tonnage of 3,037 and engines of 1,300 indicated horse power. At the same time they obtained valuable credit on the Continent, although it passed almost unnoticed in America and England, by a run of nine days three hours from

Southampton to New York by the second *Hammonia,* a record that stood for some time.

It was two years later, in 1869, that the Lloyd Line scored a big point in the struggle by a very good bargain when they secured for the comparatively small sum of three hundred thirty thousand dollars the freehold, not only of the piers at Hoboken on the Hudson River, which they had been leasing until then, but also those nearby which had been used by the Hamburg American Line.

The outbreak of the Abyssinian War in 1867 was something of a godsend to the companies which were still hard hit by the financial crash, for the British Government took up a number of Atlantic liners, both from the New York and Canadian services as transports and paid generously for them.

In 1867 the regiment of volunteers that had been raised by the Cunard Line was disbanded, but when the Fenian scare arose in the same year the drill shed that had been put up for their accommodation proved exceedingly useful for the twelve hundred regular troops who were immediately drafted into Liverpool. Two of the Cunard mail steamers were also used as floating barracks, the *Africa* and the *Australasian.* They were occupied for some weeks, but the Cunard Company refused to make any charge to the Government for the service.

In 1867 a line of sailing ships was started to the St. Lawrence and was known as the Canada Shipping Company which was afterwards to grow into the Beaver Line, one of the principal lines on the Canadian run and the predecessor of the Canadian Pacific Company's Atlantic service. They started with sailing ships only, ships of round about one thousand and eleven hundred tons, giving them the names of North American lakes, and thus starting a system which continued as long as the company remained in business.

In 1867 the Inman Line entered the Canadian trade through an agreement with the Canadian Post-office which was signed for six months only but which was to be capable of prolongation. It provided for a fortnightly mail call at Halifax, the ships to leave Queenstown on Sunday and to arrive at the Nova Scotian port on Friday. Three hundred seventy-five pounds per voyage was the subsidy paid for this service, not nearly as much as the payment which the Allan Line enjoyed for the St. Lawrence service, of course, but sufficient to make the call worth while and to re-establish the Canadian travelers' habit of using Halifax instead of Montreal.

In 1868 it became necessary to overhaul the British American mail contracts, and for the first time the Inman Line, which had hitherto been interested practically entirely in the emigrant and cargo business, was admitted. It only had a six-month contract for a weekly sailing from Queenstown every Thursday to New York. Under the same agreement the North German Lloyd steamers collected their mails every Tuesday at Southampton and the Hamburg American Line every fortnight at the same port, a service that was increased to weekly before many months had passed.

These companies were paid one shilling per ounce for letters, fivepence per pound for books, and threepence per pound for newspapers, while the Cunard Company agreed to maintain their Saturday sailing from Liverpool and Wednesday sailings from New York for a fixed payment of eighty thousand pounds per annum. All these arrangements were of a temporary nature only and at the beginning of 1869 they were thoroughly overhauled.

Under the new arrangement, which was to last for eight years, the Cunard subsidy was cut down by ten thousand pounds, although they still agreed to maintain a weekly service to New York and to Boston, with a Queenstown call in either case. The New York ship sailed from Liverpool every Saturday, and the Inman Line received thirty-five thousand pounds per annum for dispatching a ship every Wednesday, later changed to Thursday. The Hamburg-American Line decided not to renew the contract but the North German Lloyd carried on at the same rate, without being at all satisfied.

The Bremen Company soon contrived to come to an agreement with the United States Government to start at the beginning of 1870 and soon afterwards fixed things up satisfactorily for two years with the British Post-office. They had to make a sacrifice, however, and were forced to accept threepence instead of one shilling per ounce for letters, being compensated by rather less onerous conditions. The Franco-Prussian War prevented their taking advantage of this contract immediately.

Another American transatlantic venture which really deserved better luck than it had, but which came to grief owing to its making the same mistake as the Ruger Company in employing wooden ships when they were really obsolete on the North Atlantic, was the American Steamship Company which was founded in Boston in 1868 to run a service between New England and Liverpool.

They had two very fine wooden screw ships built for them by Jackmans of Newburyport, the *Ontario* and *Erie*. They were magnificent looking vessels rigged as barques, clipper-stemmed and with two funnels between the fore and main, but their wooden construction was against them from the first and the service was very short-lived. It is noteworthy that the Cunards sold their last wooden ship, the *Africa* of 1850, in the same year, after having held her as a reserve for some years.

A very famous race between the *Russia* and the *City of Paris* took place this year. They both left New York on the tenth of February, the *Paris* at 1.35 and the *Russia* at 2.40. After that their progress shows the difference that can be made in a race of this sort by different courses steered. On the eleventh they both met a heavy head sea, the *Russia* doing 245 miles and the *Paris* 242. Next day again the conditions were about equal and the day's runs were 282 against 295. On the thirteenth it was 314 against 316, and next day, both of them having a moderate breeze, they did precisely the same run of 323 miles during the 24 hours. But on the fifteenth things were changed; the *Paris* on her course had a fresh breeze and contrived 342 miles, while on the *Russia's* course it was a strong gale and she only managed 333. Then weather conditions continued to harass both ships. On the sixteenth it was 346 miles against 329, on the seventeenth 338 against 332, but on the eighteenth the *Russia* worked off her bad spell and logged 349 miles against the *Paris's* 346.

To Queenstown the passage was eight days nineteen hours twenty-three minutes for the Inman ship and eight days twenty hours five minutes for the Cunarder. No need to say that the Queenstown call was cut down to the minimum by both ships, and they were off on their way to Liverpool. The total steaming time to Liverpool was nine days thirteen hours fifty minutes against nine days thirteen hours seventeen minutes, the *Russia* improving her speed in still water and more than making up for the deficiency on the ocean passage, in considering which it must be remembered that she had to heave-to for an hour and a half on the thirteenth, in order to repair a valve in the air pump.

In June of the same year the *City of Paris* had another excellent race, this time with the North German Lloyd steamer *Main*. She left New York an hour and a half ahead of the German but early next morning the two ships were abreast. The *Main* arrived at the Needles after a passage of nine days thirteen hours, while the *City of Paris* reached Queenstown in nine days four hours from New York. As the Needles are 280 miles beyond Queenstown — roughly 22 hours' steaming at the speed of these ships — the *Main* can claim to have beaten the Inman ship by a comfortable margin, a remarkable performance. But in those days there was little or no interest shown in the Channel service and all the popular enthusiasm was centered on the Queenstown-Liverpool run.

In 1869 the design of the *City of Paris* was greatly improved in the *City of Brussels,* another Tod and McGregor ship. She was to be the last of the old type with a long, narrow wooden deck house and high bulwarks, giving very limited space for passengers. So many improvements followed immediately on her completion that she was radically altered after only three years' service. When she first came out she had a gross tonnage of 2,323 on a length of 390 feet, and engines of 600 nominal horse power.

Many authorities regard the *City of Brussels* as being the first genuine Atlantic record breaker. Such a view was held by Mr. Charles H. Cramp, the famous American shipbuilder, although it would appear to be rather unfair to the big Collins and Cunard ships which had struggled so splendidly for the Blue Ribbon in the fifties. The *City of Brussels,* however, certainly made a big difference to the record, for she reduced it from 8 days, 4 hours, 1 minute to 7 days, 22 hours, 3 minutes, an average speed of 14.53 knots.

While the Inman Company were building record breakers like the *City of Paris* and the *City of Brussels* they were also maintaining the emigrant business with which they had started by the steady construction of smaller and slower ships. The *City of Ant-*

*werp*, 2,391 tons, came out in 1867 and in 1869 the *City of Brooklyn* of 2,911 tons made a poor showing beside her contemporary the *City of Brussels* but proved an exceedingly useful asset to the company.

They were not the only concern bent on improving their emigrant connection. At the very end of the decade the Anchor Line purchased the steamship *India,* of 2,240 tons gross, on the stocks at Renfrew to reinforce the New York service, her speed of thirteen knots making her the fastest in their fleet and her accommodation being considerably better than that of the other ships. At the same time the *Anglia* and *Cambria* were ordered for the service which then maintained a regular eleven-day schedule, the ships leaving New York on Saturday and arriving in the Clyde early on the second Wednesday afterwards.

This new tonnage caused a further improvement in the emigrant trade and as the Scandinavian countries were by then fruitful fields, not objecting to emigration as being harmful to their conscript armies as in the case of the bigger European powers, the company determined to take full advantage of it. Two of the small steamers which had been employed in their Mediterranean service were brought up to maintain a feeding service across the North Sea to Granton and offices were opened in Scandinavia to collect the emigrants.

The decade closed with one very sad event to those who loved the old-timers. Eighteen sixty-nine saw the launching of the last of the specially built passenger packets, the sixteen hundred-ton Black Baller *Charles H. Marshall.*

# *Chapter V: The Seventies*

The decade between 1870 and 1879 is remembered best for three things — the Atlantic Blue Ribbon, disaster and experiment. As for the first, it began with the carefully considered determination of the White Star Line to make their position on the Atlantic and ended by the Guion Line doing the same thing. As regards the second, the period began with the disappearance of the Inman liner *City of Boston* with 177 lives and the wreck of the Anchor *Cambria* with 190. And the whole period is rich with shipping experiment — good, bad and indifferent.

The experimental side began with Harland and Wolff's revolutionary design for the first White Star liners, and as that was the first Atlantic appearance of a firm which was to have a great influence on its history, a few words concerning them are not out of place.

The firm of Harland and Wolff of Belfast started in the year 1850, when the Belfast Iron Works were founded by Messrs. Thomas Barnes and Company. Within a very short time they were absorbed by the Belfast Iron Company, which hoped for great things and which established a small shipyard to take up their surplus products. The difficulty and expense of getting coal killed the ironworks, but the shipyard struggled on and in 1853 was bought by Robert Hickson and Company who built the *Mary Stenhouse,* a sailing ship of 1,289 tons, next year.

Between then and 1859 they had built four big windjammers, two steamers and a tug, and by that time were in very low water, when Mr. Edward Harland, a hard-headed Yorkshireman, scraped together the money to buy the establishment in which he already had experience as a manager. In 1861 he admitted a Mr. Wolff as a partner, and in 1874 Mr. W. H. Wilson and Mr. W. J. Pirrie, both of whom had served their time in the yard, also obtained partnerships. It was Mr. Pirrie, afterwards Lord Pirrie, who really made the prosperity of the business.

There is no doubt that the greater part of this prosperity was founded on the phenomenal success of the White Star Line, which was in turn founded on the success of Harland and Wolff's ideas. The story of how the White Star Line started is in itself a romance, for its name will always be associated with some of the finest clipper ships in the Australian trade. Pilkington and Wilson had made the house flag famous with magnificent clippers during the gold rush, and in 1867 Mr. T. H. Ismay of Liverpool had purchased their house flag and goodwill for a very small sum. He went in for the Australian trade with the remnants of their fleet and did fairly well out of it.

It is proverbially the minor incidents in life which influence history, and it was certainly a minor incident, in the shape of a game of billiards, that influenced the history of the North Atlantic. This game, to which Mr. Ismay was invited, took place at the house of Mr. Schwabe, a Liverpool capitalist who not only had a considerable holding in the Bibby Line to the Mediterranean but who was the uncle of Mr. Wolff of Harland and Wolff and had put up a good deal of the money necessary to restart that business.

He wanted a bigger holding in the Bibby Company, but unfortunately it was not available and, having infinite faith in the ships turned out by his nephew's firm, he took advantage of Mr. Ismay's company to present a proposition to him. If he, with his knowledge of shipping and the nucleus made by the White Star Line, would start a new Atlantic company, using Harland and Wolff's ships, he would do anything that might be necessary in the way of finance. Mr. Ismay had recently formed a partnership under the name of Ismay, Imrie and Company with two other Liverpool ship owners. Mr. William Imrie, whose firm was formerly Imrie, Tomlinson and Company, and Mr. G. Hamilton Fletcher, and when they came to discuss Mr. Schwabe's proposition it appeared good. Accordingly, the Oceanic Steam Navigation Company was registered with a capital of three quarters of a million, its purpose being divided between the New York suggestion and the Australian trade in which the partners already had a hold.

Harland and Wolff's steamers, up to date in every respect, made all the difference possible to the chances of the company and it was obvious that other concerns were at a big disadvantage if they tried to compete with obsolete or makeshift tonnage. That is what the Compagnie Générale Transatlantique tried to do, for they began the decade by a courageous but mistaken policy of modernization.

Fine ships as they were of their type, their paddlers were just as unsatisfactory on the North Atlantic as all ships of that class were bound to be, but their conversion to screw, when it was suggested, was obviously an expensive business. However they started with the *Napoleon III* which was sent to Andrew Leslie and Company's yard on the Tyne. She was lengthened by forty feet amidships and ten feet at the stern, a screw engine by Maudslay, Son and Field on the Thames being installed instead of the paddle machinery. On all counts the work was a great success although it cost one hundred thousand pounds and had nothing whatever to do with her subsequent loss in collision as was suggested at the time.

She having proved herself successful, her sisters were taken in hand by degrees, but the renewal of the mail contract at the end of 1873 hastened the work and soon the *Washington, Lafayette, Imperatrice, Eugenie, Nouveau Monde, Panama* and *Europe* were converted, opportunity being taken to change the names of several from political and other considerations.

The cessation of the Cunard Boston service at the end of 1867 had caused considerable bitterness in the port to which old Samuel Cunard had first turned his attention, and when Mr. James Alexander was sent there as Cunard agent in 1869 he found a good deal of ill-feeling. He immediately set himself to persuade the company to reopen a regular Boston service, with cargo ships if passenger tonnage was not available, only insisting that it should be direct to Liverpool. Finally, towards the end of 1870, he got a hearing and the *Palmyra* made a sailing, to be followed by one or two more as inducement offered, but it was not until April, 1871, that regular service was started with the *Siberia, Palestina, Kedar, Aleppo, Hecla, Atlas, Marathon, Samaria, Batavia, Parthia, Abyssinia* and *Algeria*. Of these, only the last four were in any way worthy of the service.

The *Algeria* was unusually heavily rigged for a steamer and her first commander, Captain Le Mesurier, was an enthusiastic sailorman who used his canvas at every opportunity. As soon as the ship was clear of Point Lynas he would set all sail, which not only meant royals but even an improvised main skysail and studding sails.

The North German Lloyd had to meet increased competition and did so by increasing its sailings to New York to a regular two steamers a week — an additional steamer had frequently been necessary already — and by strengthening its services to the Southern States. In spite of the fact that all German shipping was under a cloud, owing to the Franco-Prussian War, with the French in virtual command of the sea, there was not the least difficulty in persuading the existing shareholders to subscribe to the necessary additional capital. Naturally, however, the sailings of all the German lines were very irregular. As a reward 1871 was a boom year and their dividend was increased from five per cent. to ten, but labor wanted its share and contrived to get a wage increase of 22½ per cent. This, and the fact that the new ships were proving to be more expensive than had been estimated, resulted in the 1872 dividend dropping to two per cent.

The Compagnie Générale Transatlantique was disorganized for quite another reason. In spite of the fact that the German Navy did nothing, Havre was not considered to be safe for merchant ships, so the base of the company was moved to Bordeaux, just as it was in the Great War. The big steamers of the New York mail route were used almost entirely to carry from the United States to France the arms that had been purchased and the French Reservists who were returning to the Colors. After the Armistice they were nearly all taken off the Atlantic service for a time and sent to Germany to bring back prisoners of war.

In 1870 the Anchor Line, which had one good connection across the Atlantic and another to the Mediterranean ports, decided to open a new fortnightly service of passenger and cargo steamers from Naples, Leghorn and the Sicilian ports to New York, principally for the steerage traffic that was kept busy by the demand for Italian laborers on the American railways. The *Dorian, Dacian, Grecian* and *Tyrian* were put into this service, which was the first of its kind to be established, and soon afterwards were reinforced by the *Sidonian,* of 1,391 tons, and the 1,650-ton *Ismailia* and

*Alexandria.* The direct service between Glasgow and New York was not neglected and the *Australia,* practically a sister to the *Cambria* class, was built on the Clyde.

For the Liverpool-New York service the Guion Line built the steamers *Wyoming* and *Wisconsin,* modest ships with a gross tonnage of 3,250 as befitted a company which was as yet only interested in the emigrant business, but noteworthy as being the first Atlantic steamers to be given compound engines, the working pressure being seventy pounds to the square inch. At this time the Guion Line managed to get into the mail business through a quarrel between the Cunard Line and the United States Post-office.

The Guion Line was beginning to attract notice by its success and naturally the existing companies were feeling rather bitter towards it. This bitterness came to a head when the Cunard *Samaria* broke her shaft and nine days later was sighted by the Guion *Manhattan,* who passed on her way without taking any notice, leaving the *Samaria* to sail home and to reach Queenstown after another nine days. Captain Forsyth had himself been in the Cunard service, which made feeling all the more bitter. Sailing home with a broken shaft was by no means unusual in those days. Practically at the same time the Inman *City of Brussels* damaged her propeller on the westward voyage but thought she could get home without repairs. Three days after leaving New York she lost her screw altogether and had to finish the voyage under canvas. She had sailed on the 28th of March and arrived at Queenstown on the 21st of April.

Of more importance than the Anchor or Guion tonnage were the Cunard *Abyssinia* and *Algeria* of 1870, already mentioned in the Boston service, but even they were not nearly up to the Cunard standard and there is no doubt that the company made a very big mistake in building them. They were screw ships built by Thomson with a gross tonnage of about 3,400, under-engined by simple engines which were terribly extravagant and gave them a speed of 12½ knots only, while their accommodation was limited to 180 in the saloon and 800 odd in the third class. They also had stowage for about 1,600 tons of cargo and had they been run as a purely secondary service they might have been popular.

The Cunard Line also continued the charter of the steamer *Nemesis* which they had taken up in the previous year, a ship that was originally built for the Peninsular and Oriental Line's Indian service at the time of the Indian Mutiny of 1857 which accounts for her name. She had been sold to Denny, the Clydeside shipbuilder, who chartered her to the Cunard Line while he was trying to find a purchaser and later to the Inman Company, although she was quite unsuitable for the Western Ocean.

Much better for the service was the *Parthia* which was added to the Cunard Company from Denny's yard at the end of the year. She had a gross tonnage of 3,167 and carried 200 saloon and nearly 1,000 steerage passengers. Although not an imposing vessel and of course not to be compared with some of her rivals she was quite a favorite and proved herself an excellent dividend earner, until finally she was sold to shipbuilders in the middle eighties in part payment for the record breakers *Umbria* and *Etruria*.

In 1870 the Mississippi Steamship Company, which ran a service between Liverpool and the Gulf of Mexico, struck out on a new venture during the slack summer period and changed their name to Mississippi and Dominion Steamship Company in order to run from the Mersey to the St. Lawrence. *St. Louis, Texas, Memphis* and *Pittsburg* were the first ships to be put in this service, followed by the *Mississippi* in 1872. The Canadian venture proved to be so successful that gradually it completely took the place of the Southern service altogether and in due course the name of the company was again changed to the Dominion Line and it soon acquired its share of the Canadian mail subsidy.

It entered the Canadian trade at a most advantageous time, for just then the authorities of Upper Canada had decided that the old haphazard method of immigration was not good enough and had appointed three responsible agents in Europe to encourage and regulate it. The methods bore little resemblance to the highly organized migration business of to-day, but they were a great improvement on what had gone before them and were of immense benefit to the companies.

The great event of the year 1871 was, of course, the establishment of the White Star Line which started operations on the

Western Ocean with the *Oceanic, Atlantic, Baltic* and *Republic,* the first named being the pioneer. They were all sisters, built by Messrs. Harland and Wolff to novel ideas, iron four-masted single-funnel schooners with extreme length in proportion to their beam, their dimensions being 420 feet by 40 feet 9 inches, giving them a gross tonnage of roughly 3,700.

Harland and Wolff were not at that time in a position to build big liner machinery so they went to Maudslay, Son and Field on the Thames for their tandem compound engines which were supplied by ten boilers and which were regarded as being very economical in only burning fifty-eight tons of coal per day at full speed of fourteen knots.

The company had made the definite announcement that they intended to capture the Atlantic Blue Ribbon, so that everybody was very disappointed when the *Oceanic,* on her maiden voyage, burned out her bearings and had to put back to Holyhead. There were, in fact, many features of her construction which required adjustment and her owners lost no time in putting things right, after which she proved a fast and most satisfactory ship although she herself never held the Blue Ribbon.

The White Star Line was not slow to see the faults in the pioneer *Oceanic* and her sisters and immediately altered the *Baltic* of 3,707 tons which was an appreciable improvement. Her compound engines, working at seventy pounds pressure, were conspicuously economical, while she had far greater boiler power, larger bunkers and better passenger accommodation than the *Oceanic.* She had a chance of testing her ability on her maiden voyage, for the return passage was unavoidably held up for a week, with the result that she sailed on the same day as the Inman liner *City of Paris* and beat her quite easily by five hours.

The White Star Company also started the construction of fast cargo boats, for which they were later to become famous, with the *Tropic* in 1871, which was followed by *Gaelic, Asiatic* (sold almost immediately), and others.

The Inman Line responded to the White Star series of 1871 with the *City of Montreal,* a dividend earner rather than a record breaker which had a gross tonnage of 4,451 and horizontal compound engines of 600 nominal horse power. These engines were very extravagant and when she was only six years old they were changed for ordinary inverted compound which got results quite as satisfactory with one hundred less horse power. From the profit-earning point of view she was a great success for the company until she was burned out in the Atlantic in 1887.

They also put on service the *City of Bristol,* but she was not a new ship for her Inman name disguised the Cunard *Etna* of 1855, which had been bought by the Inman Line, lengthened 45 feet until her gross tonnage was 2,655, and given new compound engines by the Lairds of Birkenhead. She was not, however, a fast ship and never could be.

Almost at the same time that the *City of Bristol* was added to the Inman fleet, the National Line obtained the *Spain* from Lairds. She was a ship of 4,512 tons with compound engines which were remarkably economical and which gave her a maximum speed of about 14½ knots. Like all the National ships she was designed principally for emigrant carrying, having accommodation for 1,400 and only 120 in the saloon. Her consort, the *Egypt,* of 4,670 tons, differed from her in several particulars and was built by the Liverpool Shipbuilding Company. She was an unlucky ship from the beginning, her bad record beginning with her launching when she ran into His Majesty's training ship *Clarence* and ending with her loss nearly twenty years later.

The White Star Line was not the only company to start in 1871, for the American Line was founded in Philadelphia with a capital of two and a half million dollars and the Pennsylvania Railway at the back of it. The ships built for the service, which was to be between Philadelphia and Liverpool with a call at Queenstown, were sturdy vessels of about thirty-one hundred tons with an indicated horse power of three thousand, and a speed of between twelve and thirteen knots. Cramps of Philadelphia were their builders and they came out in regular succession, *Pennsylvania, Ohio, Indiana,* and *Illinois.* Their Liverpool agents were Messrs. Richardson, Spence and Company.

Their very comfortable passenger accommodation soon became known — one hundred in the first class, seventy-five in the intermediate or superior third class and eight hundred in the steerage — while they had good cargo stowage. Safety was a great feature of the company's policy and these were the first ships to carry light rafts on the modern principle.

The company ran without a subsidy and contrived to do fairly well, but the running costs of the American flagships were very high and the opportunity was taken to charter a number of British ships and give them the keystone funnel of the company. Among these were the *Lord Clive, Lord Gough, British Crown, British Queen, British King* and *British Princess,* all chartered for longer or shorter periods during the seventies.

The moving spirit in this foundation of the American Line was Clement A. Griscom. He looked far more like a Southern colonel than a successful business man but he was one of the soundest shipping men of his time in the United States. In 1863, when he was twenty-two years of age, he was made a partner in the firm of Peter Wright and Sons, shipping merchants, and from that day he constantly dreamed of running a line of real American steamships across the Atlantic. There was a good deal of opposition and it was very difficult to make the accounts practicable, but he contrived it and finally got the necessary backing, just as he got the second and better-known American Line under way over twenty years later.

The inauguration of the American Line brought into prominence on the Atlantic Mr. Charles H. Cramp, the Philadelphian shipbuilder who was afterwards to have a very big influence on the route. He was born at Kensington, a suburb of Philadelphia, in May, 1828, and was the son of a shipwright. His father contrived to give him a good technical education, however, and when he left school he went into the shipyard of his uncle, John Byerly. In the meantime his father had prospered sufficiently to acquire a yard of his own, to which young Cramp transferred while he was still a lad.

He immediately showed himself to be progressive to a degree, too progressive for the taste of some of his contemporaries, and had a lot to do with the design and construction of many of the ships which made a name for themselves in the Civil War. The *New Ironsides,* one of the most successful of the Federal ironclads, was to his design. After the war he continued in his faith that the United States could do anything in shipbuilding or marine engineering that Europe could, which led to his designing and building the first compound engines built in America and his being in a position to take the contract for the first American Liners.

It was really touch and go whether the line would be established, for when the directors of the Pennsylvania Railroad began to take a keen interest in the possibilities of an Atlantic service, the Anchor Line was approached and it was suggested that they should move their New York service to Philadelphia and supply the needs of the railroad. Agreements were practically reached when the railroad authorities insisted that all the books of the company and practically the whole direction of its affair should be retained on the American side, to which the Hendersons would not agree. The result was that the negotiations fell through and in due course the American Line was founded.

But the Anchor Line was doing quite well on its American business without any alliances. The direct service between the Mediterranean and New York was strengthened by the *Trinacria* (2,256 tons) and *Assyria* (2,023 tons), while in the following year the direct service received the sister ships *California* and *Victoria,* ships of over 3,400 tons with a speed of 13 knots. They carried 170 first, 100 second and 700 third-class passengers, in addition to 2,200 tons of cargo.

Shortly afterwards the Mediterranean-New York service was again increased by the 2,250-ton *Olympia* and *Italia,* while the old *Caledonia,* by then quite outclassed for the Glasgow-New York service, was lengthened and put on to the Mediterranean run. Other ships which had seen long service on the main line were afterwards lengthened for the subsidiary services.

The last sailing packet to be built for the North Atlantic, although not for the Liverpool trade, was the barque *Sarah* which Adams and Company of Boston built in 1871 to run between New York and the Azores. An excellent vessel of five hundred and thirty tons, she did very well in the passenger service before the steamers were put on to that run and contrived to find a living on it as late as 1895.

On the Canadian trade matters were also moving. The Allan Line met the competition of the Dominion Line by building the *Sarmatian* in 1871, a great improvement on her predecessors. Like all these ships, she was an iron single-screw vessel, but her tonnage was increased to 3,647 and her engines of 600 nominal horse power were peculiar in that two of the cylinders were set vertically and two horizontally. This was not an economical arrangement and she was always terribly hard on coal, but it was certainly successful where speed was concerned and she was always good for a steady fourteen knots which was excellent for the Canadian trade and which fully satisfied the Admiralty as to her suitability as an auxiliary cruiser. She was followed by the *Polynesian,* a slight improvement on her design, which logged a record of seven days eighteen hours fifty-five minutes from Quebec to Moville. Later she was well known as the *Laurentian.* These ships proved exceedingly popular and the company started a policy of improving their older tonnage to run alongside them, reboilering and in many cases lengthening nearly all the ships on the passenger service. At the same time compound engines were substituted for the simple machines in most of them.

William Thomson of Dundee, who had been running sailing ships with cargo and passengers on the Canadian run ever since 1860, decided that their day was done and in 1871 put his first steamer on the trade. She was very small, only 799 tons, but he contrived to get a certain amount of business out of the hands of the Allan and Dominion lines and the ships which he kept on the run from the Thames to Montreal were soon steadily improved. In 1880 he scored a big success by introducing the carriage of store cattle from Canada to Great Britain.

The next move of the White Star was to bring out the *Adriatic* and *Celtic,* built by Harland and Wolff in 1872. The tonnage of the earlier boats was increased to 3,888 with a speed of 14 knots, and they were most elaborately fitted. Among other innovations was the illumination of the Celtic by gas, an experiment that had been tried by the British Navy with very small success in the case of the turret ship *Monarch,* when the only result was to produce a vile smell, a number of cases for the sick bay and a dim, flickering flame. Very similar results were obtained in the case of the *Celtic* and the experiment was soon abandoned.

With the commissioning of the *Celtic* the company had its whole fleet of six ships complete — *Oceanic, Baltic, Atlantic, Adriatic,* *Republic* and *Celtic*. The two last-named were to have been called *Pacific* and *Arctic*, but before they were launched the unpleasant associations with the old Collins liners that had come to grief struck their owners and the names were changed.

This fleet permitted them to keep a regular schedule, although the company was still a little inclined to consider outside ventures instead of sticking to the Western Ocean. For instance, in 1872 the *Republic* inaugurated a new service around the Horn to the west coast of South America, but it was an obvious failure and it was soon abandoned — undoubtedly a very wise decision.

All six were fast vessels, but the most satisfactory was perhaps the *Adriatic*. She first won the westward record with a time of 7 days 23 hours 17 minutes, working out at an average of 14.528 knots, and then averaged 14½ knots on the eastward run, beating the record of 13¾ knots which had been logged by the *City of Paris* in 1867. There was a lot of correspondence in the Press concerning the validity of these records, Mr. William Inman waxing very indignant over them.

The Guion Line, of all companies, then thought it would try for the trophy and built the *Montana* and *Dakota* specially for that purpose, the strangest and weirdest vessels ever put on to the Western Ocean. Everything was novel about their design, from the curious hull with big tumble-home like a French battleship to the machinery and water-tube boilers working at one hundred pounds pressure, and everything went wrong with them. Record breakers they certainly were not; they could not even keep the comfortable average of the company's ships, and it was perhaps a relief to everybody concerned when the *Dakota* was wrecked in 1877 and the *Montana* in 1880.

The Cunard operations during the year were mostly concerned with the minor craft. The old *Hecla* of 1860 was lengthened, her tonnage being increased from 1,785 to 2,421 and she was given new engines and boilers for the Boston service. The *Trinidad* and *Demerara* were built with the idea of running a new service between the Clyde and the West Indies, cargo ships of about two thousand tons with accommodation for a few passengers. The venture was dropped after a few months' working and the ships were put on to the Mediterranean run.

The company was unlucky in breaking its wonderful run of good fortune, the *Tripoli* being wrecked on the Tuskar in peculiar atmospheric conditions which gave an entirely false impression of its distance. However, no lives were lost, so that one part of the company's proud record was kept.

The National Line also went in for lengthening and reëngining their old ships, returning to service the *Canada* and *Greece,* both built in 1863, after they had been lengthened and given new engines.

The *Helvetia* of that company had a very unpleasant voyage in October and November. All went well until she was in the chops of the Channel, when she broke the forward crank bearing and was helpless. The steamer *Ethel* attempted to help her and in trying to pass a hawser she ran down the *Helvetia's* boat, killing one man and injuring two. She then gave it up and proceeded, leaving the liner to sail home. But she was not designed for sailing and soon found herself blown right across to the French coast, where she was in imminent danger of stranding when a lucky change of wind at just the right moment carried her clear and took her into Falmouth without any further difficulty.

The Warren Line increased its fleet considerably, building the *Minnesota, Victoria, Palestine* and the rather bigger *Iowa.* They had a good steady trade between Liverpool and Boston and were making the most of it.

While Harland and Wolff were making an Atlantic reputation with their White Star ships a firm which had been equally famous in its day passed away. The Glasgow yard of Tod and McGregor had made itself very well known for the construction of many Atlantic liners, principal among which were all the earlier ships of the Inman Line, but lately it had got into financial difficulties and in 1872 the yard was put up for sale. Messrs. Handyside and Henderson, who ran the Anchor Line, entered into a partnership with Messrs. D. and W. Henderson, a firm of Glasgow engineers who were family connections, and together they subscribed the necessary two hundred thousand pounds to purchase the yard, which for some time afterwards built most of the Anchor Line ships.

As in the case immediately after every other big war, the years which followed the struggle between France and Germany were boom years for shipping, and as usual there were speculators who imagined that they would last forever. The result was that, early in 1872, a new transatlantic company was started to run from Hamburg to New York as the Adler (Eagle) Line. On a capital of eighteen million marks it proposed to build a fleet of eight large steamers but never had the opportunity of carrying out its plans in full. It was intended to run in opposition to the North German Lloyd and Hamburg American lines and was officially the Transatlantic Steamship Navigation Company.

It made considerable progress, starting a fortnightly service with its first three ships in September, 1873, and having seven steamers in commission by the following year. These were *Goethe, Schiller, Lessing, Herdier, Klopstock, Willand* and *Gellert,* in addition to six lighters and a passenger tender named *Hoboken.*

The Anchor Line, which was forcing the trade to take its competition very seriously, was particularly active in 1873. It was taking two sailings a week from Glasgow to New York, the one by fast steamers capable of doing the passage in eleven days and the other by slower vessels employed principally for cargo. In that year the *Castalia,* 2,700 tons with a speed of 11 knots, was built for the latter service, although she served most of her time on the run between the Mediterranean and New York, and the 4,100-ton 13-knot *Ethiopia* was used for the main line.

This latter ship attracted great attention at the time and in spite of her modest size she had a large number of improvements and innovations which added greatly to the comfort of the passengers and the safety of the ship. For the first time lighthouses at the break of the forecastle replaced the side lights slung in the fore rigging, while a deep well greatly increased the light and comfort of the dining saloon. A patent ash ejector was also fitted and although many people looked askance at the one hundred and thirty thousand pounds that she cost to build she was a great success.

The company tried the experiment of carrying live cattle from America to the Clyde in its passenger ships and was the first line to attempt such a thing. A small shipment was taken at a freight of ten pounds per head in 1873, but all the other companies took to the business and the rate steadily dropped until the pioneers decided that it was not worth their while to inconvenience their passengers.

Well as they were doing on the New York run, it has been on the Canadian route that the Hendersons first tried their luck in the West and they were always anxious to return to it. So they started negotiations with the Allan Line, their neighbors on Clydeside, with the idea of purchasing the business. The discussions went on for some time, but it was found impossible to satisfy all the interests as to terms and the whole thing was dropped.

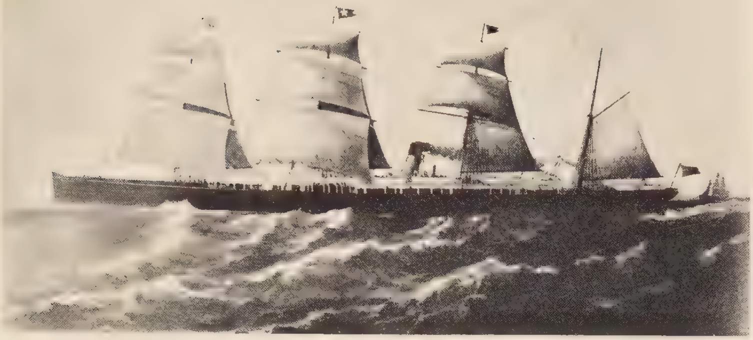
In 1873 the Duke of Devonshire, one of the richest landowners in Great Britain, sought to develop the mineral resources of that part of his estate which lay around Barrow in Furness, and to make that port one of the biggest on the coast. The Barrow Hematite Steel Company was doing a very big business with America, particularly in supplying the Pennsylvania and other railway companies with rails, and Messrs. Henderson Brothers, of the Anchor Line — for the Handyside had dropped out early in the year — were brought in as partners to run a regular steamship service from Barrow to the United States under the name of the Barrow Steamship Company Ltd. The new Anchor liners *Ethiopia* and *Bolivia* were transferred to the company, but it attempted to start operations before Barrow in Furness was ready for the reception of its ships, the railway trade soon fell off, and the competition of Liverpool was found to be very formidable. The shipbuilding yard which was founded in conjunction with the venture still flourishes under Messrs. Vickers and Armstrong but the steamship company disappeared with the end of the *City of Rome* and was never a financial success. The regular service from New York to Barrow, which had already given up its grand ideas and had dropped down to smaller steamers obtained from the Anchor Line and which were much more suitable for the route, was abandoned in 1879.

Although the Barrow venture has long been forgotten, the Red Star Line is still a power in Atlantic shipping and was founded at the same time, in 1873. American enterprise was at the back of the venture, which was for the purpose of running a regular cargo and passenger service between Antwerp and Philadelphia, but to avoid American costs the ships were kept under the Belgian flag and the company was officially the Société Anonyme Belge-Americaine. It started with the steamers *Vaterland, Nederland* and *Switzerland,* iron ships of under three thousand tons apiece, and the promoters had the idea of carrying petroleum in bulk until they were definitely told that it was far too dangerous a cargo to be considered in passenger ships and that they would have to give up either the passengers or the petroleum. Ever since then they have been doing well with the passenger business and their ships' names have always ended in *-land.*

The French Government renewed its mail contract with the Générale Transatlantique in December, providing for forty sailings on the New York run every year and increasing the subsidy to 3,644,000 francs per annum. This agreement was to have lasted until 1885, but in consequence of numerous complaints a new agreement was reached two years before that which was not very much more satisfactory. In the meantime it had done a lot of good, for in order to comply with its requirements, the company converted all its big paddle steamers into screw ships, the work being carried out at Maudslay's yard on the Thames, and a really fine fleet of modernized liners resulted.

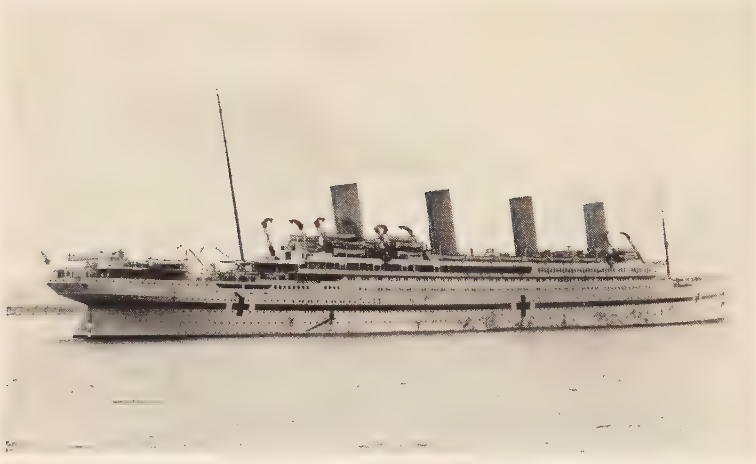
The plodding *City of Montreal,* built by the Inman Line in 1871, was not nearly enough to meet the competition of the new White Star ships. In the following year the company went to Tod and McGregor, which was about to be taken over by D. and W. Henderson, for the *City of Richmond.* Her sister the *City of Chester* had to be built by Caird and Company of Greenock on account of the change. They were iron screw steamers of 4,560 odd tons and were intended for a sea speed of 15 knots, although there was talk of working up to 17. They had two-cylinder compound engines, seventy-two inches and one hundred and twenty inches by sixty-six inches stroke, and in addition to a large coal stowage and cargo capacity of two thousand tons had passenger accommodation for about one hundred and fifty in the saloon and over thirteen hundred in the steerage. When they came out they were the biggest merchant ships afloat, always excepting the *Great Eastern,* and attracted a good deal of attention. As record breakers they were apt to be disappointing, but they were good dividend earners and popular ships.

With that addition to the fleet the management was able to dispose of the older units which no longer found a paying place on the list,

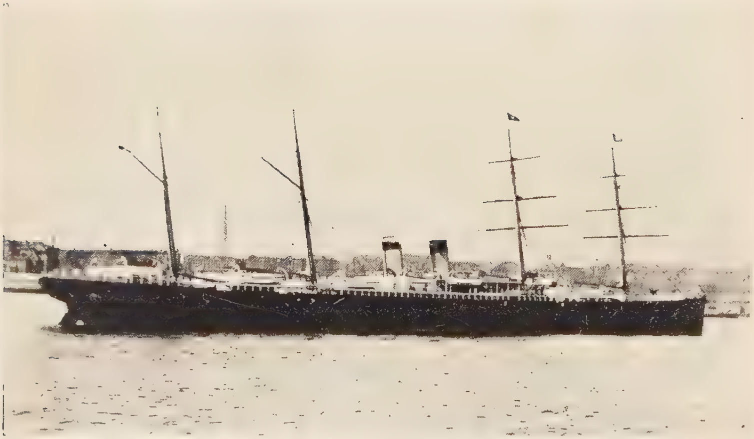


*Oceanic*, Pioneer Steamer of the White Star Line's New York Service

*City of Richmond*, a Successful Inman Liner of the Early Seventies



The White Star *Britannic,* The Biggest British Ship of Her Day, as a Hospital Ship



The White Star Record Breaker, *Germanic,* of 1874 in Her Original Rig and accordingly the *City of Halifax* of 1868 was sold for sealing and the *City of Durham* went to Cardiff coal interests. Latterly the *City of Durham* had been carrying coal for the mail steamers of the Inman fleet with intervals of maintaining a cargo service between Havre and Liverpool in company with the *City of Halifax*.

The White Star was triumphant when it won the eastward record from the Inman Line beyond all argument with the *Baltic,* but it was one of the blackest years in the company's history, for it was marked by the *Atlantic* disaster. She had been a most successful vessel ever since her maiden voyage but on this occasion she had a most unfortunate westward passage with an adverse gale the whole way across. Her captain became anxious about his coal and decided to put into Halifax to get further supplies, but in making the Sambro Light she stranded on Maris Rock and soon began to pound herself to pieces. There were nine hundred souls on board at the time and the three hundred odd who escaped owed their lives entirely to the gallantry of Quartermaster Owen, who lashed the signal halyards round his waist and swam through a boiling surf to establish communication with the shore. As it was, 562 lives were lost and the wreck had its effect on the fortunes of the company for some years afterwards.

The disaster to the *Atlantic* was the worst that the service suffered for many years, but 1873 was marred by several losses. After the *Atlantic* the worst was that of the Générale Transatlantique liner *Ville du Havre* with 226 lives after a collision with the sailing ship *Loch Earne.* She was one of the ships just mentioned as having been converted from paddle to screw. The Dominion steamer *Missouri* and the Inman *City of Washington* were both wrecked, but in each case no lives were lost, while when the Guion liner *Colorado* was sunk in collision the death roll was kept down to six by the good discipline and gallantry of the crew. The French steamer *Europe* foundered in the Atlantic and in her case the crew owed their lives to the gallantry of the ship's company of the National liner *Egypt,* who almost contrived to save the ship as well in spite of tremendous weather.

Naturally enough, this string of accidents caused a lot of feeling and the Cunard line, whose reputation for safety was one of its greatest assets, issued very strict orders to procure safety, although curiously enough they were made with the idea of avoiding collision only and took no notice of the ice danger that was really far greater in the open sea. They provided a definite steaming lane for eastbound and westbound steamers, the former being ordered to cross longitude 50 at latitude 42 and the latter at 43 so that, provided they kept a perfect course, there was no danger of two Cunard steamers colliding at all events.

The year has one rather melancholy association for those who loved the tall sailing ships. In recent pages they have called for little mention, but they were still running on certain routes, trying hard to pick up a few emigrants from the steamers. Finally, Messrs. Grinnel and Minturn's London Line ceased carrying passengers in 1873 and that business was done forever, for they were the last survivors of the once mighty packet business. Their ships continued to carry cargo for another ten years but when their *Ne Plus Ultra,* of thirteen hundred tons, came to her end in 1883, the sailing-packet connection between England and the United States was broken forever, although there were a few sailings between America and the Western Islands.

The year 1874 began the great slump, but it was also the year that saw more remarkable new ships added to the Atlantic service than any other. The financial crisis affected most parts of the world, but particularly Europe and the United States. It soon put an end to the boom which German shipping had been enjoying since the Franco-Prussian War. All the Continental companies were particularly hard hit, freight rates slumped and the steerage rate had to be reduced from fifty-five thaler to thirty.

This was bad enough for the old established companies like the North German Lloyd and the Hamburg American, but the Adler Line had not yet had time to get on to its feet and moreover was shortly to suffer another blow by the loss of the *Schiller* with a big death roll. It became obvious that it had no chance of weathering the slump and rather than see it taken over by some other interest which would introduce new competition, the Hamburg American Line bought the competing company, although they were in no financial position to do so. Eleven million four hundred thousand marks was the price for the business, docks and fleet but it had to be paid principally in new shares and bonds and it was a very bad time for raising new capital in the shipping world. So for some time it looked as though the pessimists were right and that the Hamburg Company was likely to be choked through biting off very much more than it could chew. But had the competition of the Adler Line continued, it is probable that the Hapag would have been ruined so that the heroic measure was undoubtedly the best although it was not to show its results until the end of the decade.

That was the somber side and there was plenty of it. But on the other hand the "1874 vintage," as it was called, was a most interesting one. First came the White Star *Britannic* and *Germanic,* designed to keep their owners in the front rank for speed and size at all costs. Once again Harland and Wolff of Belfast were the contractors and these were the biggest ships that they had yet attempted, but they were still not in a position to build the machinery required and that had to be obtained from Thameside. The ships had dimensions of 455 by 45.2 by 33 feet depth of hold (gross tonnage just over 4,000) and their design was really only a development of that of the pioneer *Oceanic* although the two funnels of the new ships gave them a very different appearance. They had four-cylinder compound engines of 4,900 indicated horse power and at 52 revolutions per minute were sufficient for a spurt of 16 knots. The coal consumption of 96 tons per day at full speed worked out at under 1.8 pounds per indicated horse power per hour.

Mr. Edward Harland was still anxious to try all sorts of experiments and in one of these ships he fitted a dropping propeller with a universal joint on the shaft, the idea being that it could be lowered into water of greater density which would give a better thrust. It was carried for a few voyages and then scrapped, for it had only resulted in a waste of power.

The moment the ships came out they proved themselves flyers, the *Britannic* having the best westward maiden voyage on record with an average of 14.46 knots and a best day's run at 15.33. They were also the very keenest rivals, both of them holding the Blue Ribbon at different periods.

Such ships were a tough proposition for the Inman Line, which had already contracted with Cairds for the *City of Berlin.* Her gross tonnage was 5,491 and when she was originally laid down her compound engines were supposed to give her a speed of 14 knots which would be sufficient to let her hold her own with the White Star ships of the *Oceanic* class. Before her construction had got very far, however, the true details of the new White Star packets had been divulged and sundry alterations were made which permitted the *City of Berlin* to work up to over fifteen knots for the length of the Atlantic passage, which gave her the Blue Ribbon in 1875.

Her dimensions were 488.6 by 44.2 by 34.9 depth of hold, but she was built with the usual Inman long clipper stem and counter stern, so that her over-all length was no less than 520. Her gross tonnage was 5,491 and her net 2,957. The dimensions of her two-cylinder compound engines were the same as those of the *City of Richmond,* 72 and 120 inches by 66 inches stroke, but the pressure was increased to 75 pounds and steam was supplied by 12 boilers. On trial she did not appear very promising, her 5,200 indicated horse power giving a mean speed of 14.825 knots against the designed 15 but she was a splendid ship in service and from her maiden voyage onward she showed herself a flyer. It was not, however, until September, 1875, that she won the westward record with seven days eighteen hours two minutes, an average speed of fifteen knots which was three quarters of a knot faster than the *Adriatic.* She capped this by taking the eastward record from the *Baltic* in October, 1875, her time being seven days fifteen hours twenty-eight minutes, and her average speed fifteen and one-fourth knots. The *Baltic* had already averaged fifteen.

Quite apart from her speed she was an interesting ship, her great fault being that she was appallingly extravagant in coal. Her saloon was brought amidships after the White Star fashion instead of being placed aft, and later in her career, towards the end of 1879, she was the first ship on the Atlantic to be given electric light. So popular was she that in 1887 she was given triple-expansion engines developing 6,025 indicated horse power with 152 pounds pressure which greatly increased her speed and at the same time her passenger accommodation was modernized and improved. It may be mentioned that at the time of the Spanish-American War of 1898 she was bought as a United States transport and renamed *Meade.* She not only did excellent work in that capacity but as recently as the Great War she served the United States well by acting as a training ship for the seamen of United States Shipping Board ships, going to the scrapping-yard soon after the Armistice.

The Cunard reply to the *City of Berlin* and the *Britannic* was not to be compared with those ships, although she was a fine vessel of her type. The *Bothnia* was built by Thomsons and had a tonnage of forty-five hundred. She had a flush deck with a long promenade and boats over it, and could manage her steady thirteen knots on a coal consumption of about sixty-three tons per day. In addition to a good cargo capacity she had accommodation for three hundred passengers in the saloon and eleven hundred in the steerage, the quarters being very much more comfortable than in most ships of that day.

The rumor got about that the Cunard Line again intended to abandon their Boston service, and realizing the effect of this in New England, the National Line immediately announced that they would take it up. As it happened the Cunard Line had not the least intention of doing this, the only foundation for the report being that they had found it very difficult to get eastward cargoes and had therefore arranged to fill up their ships by sending them home by way of New York, where there was almost invariably cargo to be had. Caught in that way, the National Line followed suit but their service was not a great success. As soon as the new arrangement was completed the Cunard Line put on to the Boston run the new *Saragossa,* a ship of 2,166 tons gross with compound engines.

A very small event which was to have infinite possibilities occurred in 1874, when the Allan liner *Caspian* carried the first consignment of frozen meat into Liverpool. It was only an experimental shipment of a dozen tons of beef, but it started the transatlantic meat trade of to-day.

The Anchor Line immediately saw the chance offered and started it as a regular feature within a few months of the first shipment. Mr. Thomas Henderson of the firm was enthusiastic over the possibilities of this trade and he persuaded Mr. John Bell, a big Glasgow butcher, and Mr. T. C. Eastman, a New York cattleman, to go into the business with him. All the ships of the weekly express service were fitted out with refrigerators carrying about four hundred tons of frozen meat each, and this was then regarded as handling the meat in huge quantities.

While the Beaver Line had been purely a sailing-ship company it did not interfere very much with the working of the Allan and Dominion lines, but in 1874 they were faced with a crisis. Tug owners on the St. Lawrence were charging what was regarded as a ridiculous price for their services and taking a lot of the profits of the sailing-ship companies.

The Beaver Line actually discussed the question of going out of business as not being worth while, but instead they decided to turn to steam, beginning with a small tug which was intended to help their sailing ships up the St. Lawrence. Close on her heels came the first three liners, *Lake Nepigon, Lake Champlain* and *Lake Megantic.* They were iron single-screw ships built on the Clyde with a tonnage of about twenty-two hundred and were quite useful vessels for the Canadian run.

The great excitement of the year 1875 centered round the commissioning of the White Star *Germanic,* the Inman *City of Berlin,* and the Cunard *Scythia* practically at the same moment. The *City of Berlin* took her maiden voyage on the 9th of May, the *Scythia* on the thirteenth, and the *Germanic* on the thirtieth. The Inman and the White Star ships were, of course, very bitter rivals, particularly over the Blue Ribbon which was batted to and fro between them, but the *Scythia* was quite a different type, an exact sister to the *Bothnia.* She was not nearly as pretentious as the other ships, but she did a comfortable fifteen-knot trial.

The Cunard Company took the opportunity to clear its lists of a number of old ships. The *Cuba* was withdrawn, to be followed closely by the *Calabria.* They were both sold next year, the *Cuba* to be converted into the four-masted sailing ship *Earl of Beaconsfield* and to be wrecked in 1887, the *Calabria,* which was of course the old *Australasian,* to become a telegraph cable ship.

The White Star sent the *Gaelic* and *Belgic* into a new transpacific service, first fitting them to carry forty saloon passengers apiece, which eased the situation on the Atlantic somewhat. The Guion Line also found that it had more ships than it knew what to do with as things were, and when their pioneer steamer *Manhattan* emerged with new engines and generally modernized, she was sold to the Warren Line for the Boston route and served that as the *Massachu-*

*setts* until 1880. The Warren Company also took over the Guion liner *Minnesota*.

It was scarcely an opportune time for new ventures, and those that were launched were mostly of a desperate nature because things were so bad everywhere that the Atlantic could not be worse than other routes but might give a return. On the other hand, the Anchor Line had very carefully husbanded its resources and was pursuing its logical and well-planned scheme of development. It opened a seasonal cargo trade in the spring and autumn between London, Halifax, Nova Scotia or St. John, New Brunswick. It was a seasonal trade only and it was not worth building tonnage specially for the purpose, so that ships were borrowed from the regular Mediterranean service. Another route which the company opened at the same time was a monthly cargo service from Bordeaux to New York, but although the westward freights were satisfactory there was little or nothing to be carried eastward and the service was abandoned after two years.

These were followed next year by a new fortnightly service between London and New York, the company transferring to it the old *Utopia* and *Elysia*, and having the *Alsatia* of approximately the same size built especially for it.

The rapidly increasing competition on the Dominion service forced the Allan Line to go to Steele of Greenock for a ship which was to be a great improvement on anything in their fleet. The *Sardinian* was rigged as a barque and had a gross tonnage of 4,376 with compound engines of 600 nominal horse power.

At the end of 1875, during a period when there were numerous dynamite outrages all over Europe, the North German Lloyd liner *Mosel* was seriously damaged by an infernal machine as she lay alongside the quay at Bremen, taking her passengers on board for New York. A man named Thomas, who had been the very daring captain of the blockade runner *Old Dominion* in the Civil War, had taken a passage to Southampton and was sending on to New York a package containing dynamite which was to be exploded by clockwork in mid-Atlantic. While he was watching this package being slung on board it slipped from the sling on to the quay and there was a colossal explosion. Thomas himself died from his wounds and one hundred and twenty-seven other people who had nothing to do with the matter were murdered, in addition to many being injured.

This ghastly case was followed soon afterwards by the loss of the same company's *Deutschland* in the Thames Estuary with sixty lives, a wreck which so much shocked the German public that Marine Courts were established to deal with shipping casualties in the future.

In 1876 the Leyland Line came on to the Boston field from the Mediterranean run. Frederick Leyland had been a clerk in the office of Mr. J. J. Bibby, an old established Liverpool shipping firm, and he had gradually worked his way up to the top. When Mr. Bibby decided to retire from shipowning in the early seventies, having by then a big sailing-ship fleet and a good steam connection with the Mediterranean, Mr. Leyland was in a position to take over the business. But the opening of the Suez Canal had finished the profits which Bibby's had formerly made in the Mediterranean and Leyland decided to turn his attention to the Atlantic with a Boston service. He possessed some excellent vessels and he took the six biggest and best of these to start his new enterprise. They had been the finest steamers in the Mediterranean trade and did not compare at all unfavorably with the tonnage on the Boston run. They were *Bavarian,* built 1868, 3,052 tons; *Bohemian,* 1870, 3,052 tons; *Bulgarian,* 1870, 3,052 tons; *Iberian,* 1867, 2,920 tons; *Illyrian,* 1867, 2,931 tons, and *Istrian,* 1867, 2,920 tons. The *Iberian* took the first sailing and they did so well that new ships were soon justified, but Leyland did not give up his Mediterranean interests altogether and these were subsequently to become the nucleus of the gigantic Ellerman group.

The competition between the Beaver and the Allan lines, coupled with the opening of the railway which connected Halifax with the heart of Canada, caused the latter company to make Halifax its winter port of call in 1876. It was a move that had been long desired and which had been delayed by the very poor railway facilities.

All this time it was a ding-dong fight for the record between the White Star *Britannic,* which at this time was rather a faster ship than the *Germanic,* and the Inman *City of Berlin.* The *Germanic* had improved the Inman ship's 15¼ knots to 15 ¾ on the eastward run, but the *Britannic* improved this on her fifteenth voyage to an average of 15.94, having already obtained the westward record on her fourteenth passage with an average of 15.43. The *Britannic* retained this record until the end of the decade, entering into a dispute with the Guion *Arizona* in 1880 as that ship made a shorter time at precisely the same average speed.

The year 1877 was one of changes of policy on the part of the British Post-office with regard to the transport of mails, changes which cannot be unconnected with a grave indecision. As from the first of January all the old mail contracts were ended and new arrangements came into force whereby the Cunard and the North German Lloyd carried the mail on their old sailing days, the Guion Line took over Inman's old sailing, and the Anchor started the new Scotch mail service, calling for the Irish letters at Moville.

The Inman Company were not to be left out in the cold for very long and in March they secured a regular sailing, every Thursday from Liverpool and Friday at Queenstown. After a lot of effort the White Star Line also contrived to conclude mail arrangements, but in their case they were only occasional.

But by December a new arrangement altogether came into force whereby the contract was limited to the Cunard, Inman and White Star lines. The Cunard took Saturday, while the Inman and White Star arranged between themselves to cover Tuesdays and Thursdays regularly. For this the General Post-office paid four shillings a pound for letters and fourpence a pound for newspapers, the stipulation being that the gross amount was to be equally divided between the companies at the end of the years. The North German Lloyd, Anchor and Guion lines thus dropped out of the English mail business, and the last named immediately changed its sailing day to Saturday to suit its own convenience.

The Inman Company had very bad luck with broken shafts during the year. The *City of Berlin* broke hers in mid-Atlantic and the National liner *Egypt,* which had sailed on the same day and was by then well astern, came up with her and towed her into Queenstown, receiving two thousand pounds salvage for her services. Soon after her repair the *Berlin's* screw worked loose from its shaft and she proceeded under sail. This time it was her consort the *City of New York* who picked her up and towed her in, so that there were no salvage charges to pay.

The *City of Brussels* also broke her shaft and reached the Irish coast under sail, her best day's progress being 183 miles which showed that these ships were not so bad under canvas. She was crowded with Catholic pilgrims at the time and her late arrival caused some panic and hurried reinsurances on Lloyd's.

Hers was a particularly unlucky case for she had just been given new engines of a novel four-cylinder, tandem compound type which reduced her consumption from between one hundred and ten and one hundred and fifteen tons per day to a steady sixty-five, the saving in bunker space allowing her to carry eight hundred tons more cargo.

Other well-known liners which were given new compound engines and new boilers during the year were the Inman *City of Montreal* and Cunard *Java,* which latter was chartered for Warren's Boston service immediately the work was completed.

Apart from these broken shafts there were a good many accidents on the Atlantic service, although happily they were most of them unaccompanied by casualties. The wreck of the *Dakota,* the Guion Line's failure, has already been mentioned, but in addition the Dominion liner *Bavaria* was burned and the Red Star liner *Rusland* and the Compagnie Générale Transatlantique liner *Amerique* were wrecked on the American coast. The Wilson liner *Colombo* disappeared in the Atlantic with forty-four souls on board and no trace was ever found of her.

Herr J. G. Lohmann took over the management of the North German Lloyd Line when Herren Stockmeyer and Overbeck had died in rapid succession. Lohmann was to have a great influence on North Atlantic history, for he was a pushing, go-ahead man of vast ideas, but at that time he was still comparatively young and his schemes might not have had such a successful ending had they not been carefully weighed by the experience and caution of Herr H. H. Meier, who still had a great measure of control as president of the company. There was a certain amount of disagreement between the two heads on many occasions, but it was a splendid combination for the company.

Although perhaps it does not directly concern the North Atlantic the formation of the Russian Volunteer Fleet in 1877 had such an effect on the Atlantic trade and the ships which were built for it that it calls for notice. In those days relations between Britain and

Russia were strained, particularly on account of the attitude which the British Government took over the Russo-Turkish War, and although they spent large sums on their navy the Russians could never approach equal numbers, principally on account of the corruption in high circles. Therefore those who wished to see this inefficient fleet reinforced and those who wished to hide their actions joined forces in the proposal to build a volunteer fleet of auxiliary cruisers, the money to be raised by popular subscription throughout Russia.

The moving spirit of this suggestion was Admiral Lesovsky, a cruiser officer who was one of the leading advocates of the Guerre de Course and who was made Chief Constructor of the Russian Navy in the spring of 1878, but at a time when open rupture between Britain and Russia was by no means unlikely. His first action was to send a secret mission across to the United States to buy and arm fast American liners, but the United States authorities were too careful of the neutrality law to permit them to be at sea with American crews on board should hostilities break out suddenly. Lesovsky was therefore driven to charter the Hamburg American liner *Cimbria*, the lame duck in their fleet, in which embarked seven hundred Russian naval seamen at the dead of night in a lonely spot on the Baltic coast not far from Reval. That was before the days of wireless and he had every hope that he would succeed in bursting a bombshell in the British camp by keeping their mission secret until they actually took over the ships. As a matter of fact they were observed and the whole matter was reported in the London Press within a day or two of their departure, so that the dramatic surprise was a fiasco. However, the ships, although absolutely unprotected, were a very considerable accession to Russia's cruiser strength and immediately the idea of reinforcing them by other liners bought in by public subscription was taken up enthusiastically. The first ships, it must be remembered, were naval and not Russian Volunteer Fleet units.

From the highest to the lowest, subscriptions flowed in from all over Russia, the Crown Prince Alexander becoming the president of the committee and its mainstay. The deeds of the *Alabama* and *Sumter* were reproduced in gaudy pamphlets and circulated in hundreds of thousands until within four months of the first proposal the committee was ready to start purchasing.

The Hamburg American Company, having helped Lesovsky in his initial venture, was quite naturally given the first opportunity of selling its surplus ships, and they found it an excellent chance of getting rid of the *Holsatia, Hammonia* and *Thuringia* — ships which were long past their prime. It was reckoned that their value was about ten thousand pounds but the Volunteer Fleet was willing to give one hundred sixty thousand pounds for them and naturally the company did not refuse. They were followed by the *Saxonia,* never a satisfactory ship, and were renamed *Russ, Moskva, Petersburg* and *Nijni Novgorod,* the last named to obtain most unenviable notoriety as a convict ship. A fifth, the *Yaroslavl,* was built in Toulon and was by far the most satisfactory unit of the fleet. First of all they were employed repatriating the Russian armies from Turkey, after which they ran principally from the Black Sea to the Far East in peace time, the repeated suggestion that they should run an emigrant service to New York not being scrapped until the early days of the twentieth century. They had full cruiser's armament reserved for them while they were carrying out trooping and commercial duties.

Although the shares of the Cunard Line had been issued to the public when the service first started in 1840, the three families of Cunard, Burns and McIver bought them steadily whenever they appeared on the market and soon possessed the whole of the share capital. As the old generation died out it was decided in 1878 to register the company under the Limited Liability Act and accordingly a joint stock company was formed with a capital of two million pounds, of which one million two hundred thousand pounds was issued and taken up by the three families as part payment for the property and goodwill. It was not until 1880 that any shares were offered to the public, when they were eagerly snapped up.

At the same time the company took off service several of their ships which were regarded as obsolete. The *Java* had not taken a Cunard sailing since she had been reëngined, but had been running under charter to the Warren Line and she was now sold to the Red Star to become the *Zeeland.* The *China, Siberia,* and *Russia* were laid off service awaiting disposal. The *China* and the *Russia* found employment next year as transports in the Zulu War and immediately she had finished that job the former was sold to Spain and became the *Magallanes.* So satisfied were her purchasers that they also bought the *Siberia* and named her *Manila* but she was immediately wrecked.

During the year the Compagnie Générale Transatlantique was planning to extend its mail activities to the North African colonies and at this time it began to take an interest in Marseilles as a possible base and sent the *Ville de Marseille* there to inaugurate a new service to New Orleans, calling at Barcelona, Cadiz, Teneriffe, St. Thomas and Havana. The service was a monthly one and it was expected to grow into a very important link between France and the United States. But in the following year their negotiators succeeded in obtaining the mail subsidy to North Africa and the company concentrated their Mediterranean efforts on that.

The *Lake Megantic,* one of the first Beaver steamers built for the line to the St. Lawrence, contrived to pile herself up on Anticosti and the company immediately entered into negotiations with J. and G. Thomson of the Clyde to build a successor which came out as the *Lake Winnipeg.* She was an infinitely better vessel than her predecessors, having a gross tonnage of thirty-three hundred instead of twenty-two hundred and very much more powerful engines. It is interesting to note that when she had finished her days in the company she was sold to the Turkish Government as a transport and was finally destroyed during the war with Italy.

The Guion liner *Idaho* of 1869 was wrecked close to the Connibeg Light on the Irish coast, traveling far too fast in a fog. The captain was found to be in default and his ticket was suspended for six months, but the Court took the opportunity of giving high praise to the measures which he took after the wreck which saved every soul in spite of the rapidity with which she rolled over into deep water and foundered. The Hamburg American *Pomerania* was sunk in collision in the Straits of Dover, about fifty lives being lost on that occasion.

The last year of the decade was noteworthy for particularly fine new tonnage and renewed interest in the Atlantic record. In spite of their discouragement with the *Dakota* class, the Guion Line determined to wrest the Blue Ribbon from the White Star *Britannic* and *Germanic* and went to Elders of Fairfield for the ship, giving them a free hand in her design. The result was the *Arizona,* built in this year for the express purpose of beating the record. An iron single-screw ship of 5,146 tons with a three-cylinder compound engine of 6,000 indicated horse power, she was a magnificent vessel in appearance with 2 funnels and 4 masts, and her trial speed of 17.3 knots gave every hope of her fulfilling her function. Her coal consumption of 110 tons per day gave rise to a certain amount of anxiety, for she could only stow 1,200 tons in all, but her owners were quite satisfied with her, particularly when she lowered the *Britannic's* westbound record by 23 minutes without waiting to shake down, and immediately repeated the process to the eastward. It was to her that the name "Atlantic Greyhound," which has since become general, was first applied.

Speed being everything in her case, it is not surprising that her people were inclined to drive her fast even in foggy weather, and on one of her first voyages she rammed a Grand Banks iceberg end on and "concertina-ed" her bow for a considerable length. So excellent was her construction that she contrived to reach St. John without very much difficulty and after a considerable delay a false wooden bow was fitted there which enabled her to return to the Clyde for repairs. Although her captain got into trouble for driving her far too fast in fog and his certificate was suspended, her owners found that her accident had done her far more good than harm, for people were saying that if she could withstand such a shock she could withstand anything and must be the safest ship on the Western Ocean.

The launching of the *Arizona* was really a landmark in the history of the Atlantic steam navigation that was not generally recognized at the time — the separation of the passenger and cargo steamer of the modern screw fleets. In the early days it had been necessary to separate the passengers from all but the most expensive of the cargo business because the cumbersome and extravagant paddle engines took up so much space with their boilers and bunkers that there was no room for it. Then, as machinery got more compact and more economical, the shipowners were able to make their profits in both directions. When the *Arizona* came, however, her colossally powerful machinery brought back the old days and her cargo capacity and that of the ships which followed her was very limited. This in turn brought about a very interesting new type, rather more moderate in speed but possessing solid comfort and carrying a fair quantity of cargo as well as passengers.

Another epoch-making vessel was for the Canadian service. Just as in 1861 the Allan Line, whose tonnage was not to be compared with the big concerns on the New York run, had led the Western Ocean in the introduction of the spar-decked steamer, so in 1879 it built the first all-steel Atlantic liner. Denny of Dumbarton were the builders and they called their ship the *Buenos Ayrean,* which was given that name, as she was designed to run on the River Plata service as well as the Canadian, and was a first-class ship in every way. Her dimensions were 385 feet by 42 by 30 depth of hold, giving her a gross tonnage of 4,005. Her compound engines of five hundred nominal horse power drew their steam from the biggest steel boilers that had ever been built for marine use, and altogether she created a sensation in shipbuilding and marine engineering circles. She was intended to carry cattle as well as passengers and was heavily built up amidships with low ends, although the conditions that she met with caused her to be fitted later with turtle-back decks.

The Cunard *Gallia,* which came into service during the year, although she was launched in 1878, was another noteworthy vessel that is deserving of more than passing notice. She had a gross tonnage of 4,809 and had stowage for 2,000 tons of cargo in addition to very comfortable passenger accommodation. She was propelled by three-cylinder compound engines, supplied by eight boilers working at seventy-five pounds pressure, and on trial working up to 53 hundred indicated horse power for a speed of sixteen knots. Her engines were economical, consuming ninety-eight tons of coal per day, and altogether she was a very successful ship. Her main saloon was in rather an unusual position, on the spar deck abaft the engine room fiddleys, extending across the whole width of the ship for forty-two feet of her length.

The Inman Line did not build any new tonnage, but they carried out a number of experiments and improvements to their existing fleet. Of these the most interesting was the fitting of electric light into the *City of Berlin,* only six lamps in all, it is true, divided between the saloon, the steerage and the engine room, but sufficient to cause quite a sensation in Atlantic circles. The experience of being able to read or sew in any part of the first-class saloon of an Atlantic liner was something novel.

Trade had not yet recovered from the deep depression, so that the chartering of a number of liners by the British Government as transports for the Zulu War was very welcome. The National Line supplied the *England, Egypt* and *France* at twenty shillings per ton per month, and the *Spain* at twenty-two shillings sixpence. The Inman *City of Paris* secured twenty-five shillings, but she had the bad luck to strand in Simons Bay and was soon paid off. The Cunard Line also got twenty-five shillings for the four ships which they supplied, *Russia, China, Olympus* and *Palmyra,* and as the two first named had been put aside as beyond service they were appropriately grateful, although unfortunately a capstan accident on board the *China* caused nineteen casualties. The Dominion Line supplied the *Ontario* and *Borussia* on special terms.

During the year the Inman Line sold the *City of Antwerp* to the Johnston Line, who gave her new boilers and compound engines and rechristened her *Thanemore.* She was still bearing this name when she disappeared in 1890 and was believed to have been burned at sea.

Unfortunately, among the casualties there were two very serious wrecks. The Dominion liner *Borussia* foundered in the Atlantic soon after she was returned from her trooping duties, taking one hundred and sixty-five lives down with her, while the State liner *State of Virginia* was wrecked on Sable Island with the loss of nine lives. Among the less serious accidents, the White Star *Celtic* lost all her propeller blades while on the eastern run and sailed home, being at sea fifteen days ten hours. The *City of Chester* lost her rudder and rudder post just outside New York and the National *Erin* also lost her rudder but managed to make Queenstown.

Circumstances were not exactly favorable for the establishment of new services, but just before the end of the decade another minor steamship service was put on the Atlantic by Messrs. Charles Hill and Sons who for many years had been maintaining a very thriving shipbuilding business at Bristol and who ran a few sailing ships on the Western Ocean. They started modestly with the *Bristol City,* only carrying a handful of passengers at reasonable rates, but their popularity soon increased and although they were primarily interested in the cargo business they built up quite a fine fleet of small ships. It was most unfortunate that the little *Bristol City,* after doing particularly well, went missing after little more than a year's work.

## *Chapter VI: The Eighties*

The eighties are essentially the decade of steel construction, but they are also the decade in which the twin-screw propulsion came into its own. Experimental steel small craft had been built at a much earlier date, while the Allan liner *Buenos Ayrean* and a steamer for the Union Steamship Company of New Zealand had been built of steel in 1879, but the appreciation of its value came with the eighties and its use in a number of important Atlantic liners. Similarly twin screws had been thought of in the very earliest days of steam propulsion, but they gained full appreciation in the eighties, first with the Hill Line which proved them to be practicable, and second with the famous *City of New York* and *City of Paris* at the end of the decade which proved them to be infinitely superior to the old single shaft.

The Cunard Company had been converted into a limited liability concern in 1878 when death had taken such a toll of its old heads, but shares were not offered to the public until 1880, when they were eagerly snapped up. This naturally involved certain changes of control and the first problem that confronted the new Cunard Board was the question of steel construction, which was then beginning to attract notice. It is doubtful whether the old Board would have thought it worth its while to try the new system until many other companies had done so, but the new broom swept clean and Messrs. J. and G. Thomson were instructed to lay down the *Servia* which was quite an epoch-making ship in her way and attracted a lot of attention, not only because she was the largest and most powerful steamer that had been built in Britain up to that day—always excepting the *Great Eastern*—but also because her fittings included such comforts as electric light.

The Hamburg American Line had also begun the decade with a change of control, Herr Godeffroy, who had controlled its fortunes since the beginning, retiring at the commencement of the year after thirty-three years' hard work in the company. It had included many anxious times, particularly in the big slump of the seventies, and although he was only sixty-six years of age, his health was breaking down and his eyesight failing him. His retirement saved him and he lived for another thirteen years. His colleague Carl Woermann died in the same year and in the new Board, Herr Oscar Ruperti, representing Merck and Company, was elected chairman, while Carl Woermann was succeeded by his grandson Adolphe, and Munchmeyer and Company also secured representation.

The first thing that the Board had to do was consider the construction of a new fleet. When the Adler Line had been taken over the Hapag had a surplus of tonnage, but it was not all of the type wanted for the direct New York service which now appeared to be reviving and far surpassing its previous best. New ships were purchased and laid down but they were of a very modest type, mainly on account of the poor condition of the Elbe, a handicap which the Board of the Company were not strong enough to tackle as Albert Ballin's administration did at a later date.

Although they were not to be compared with the express steamers whose construction for the North German Lloyd was already being discussed, the tonnage thus laid down in 1880 and 1881 was interesting. Two of the contracts were entrusted to German yards, the *Rugia* to the Vulcan Yard of Stettin and the *Rhaetia* to the Reiherstieg Yard of Hamburg, companies which had not before been given the job of building liners of over thirty-five hundred tons.

The third ship of the program was the *Hammonia,* the third ship of the name in the company's fleet; she was ordered in England and delivered in January, 1883.

This rather tame consent of the Hamburg American to drop into a secondary place did their business a lot of harm with the German emigrants, but worse was to come when the *Cimbria* was lost and the subsequent inquiry revealed how the new Board of the company had let down their prestige and organization.

The Allan Line took another big step on the Canadian service by building the *Parisian* of 1880. Napiers were the builders, working from the designs of Doctor Kirk, the inventor of the triple-expansion engine. She was an appreciable improvement on the

*Buenos Ayrean* and was specially designed to lower the Canadian record.

As originally planned she was to have a gross tonnage of rather more than six thousand, an unheard-of size for the St. Lawrence route, but while she was still being discussed the Canadian Government reduced the mail subsidy to one hundred and twenty-six thousand dollars per annum and hinted at a doubt as to whether even this would be continued, so that the company decided on something more modest. Even so she was the biggest ship on the Canadian run, with a gross tonnage of 5,365, her three-cylinder compound engines indicating 6,000 horse power and giving her a speed of 15 knots. Her deadweight capacity was ten thousand tons which did not interfere in any way with the design of her excellent passenger accommodation, including a number of two-berth cabins which were then something of an innovation on the Northern service. As soon as she was commissioned she lowered the Canadian record and her first hundred round voyages were made without a single accident or delay. While they were thus improving their passenger service, the Allan Line bought a number of ships for the cargo and purely immigrant run including the old Inman liner *City of New York* of 1865 which they rechristened *Norwegian.*

The Beaver Line replied somewhat half-heartedly to this by building the *Lake Manitoba,* going to J. and G. Thomson on the Clyde for her and making her design practically identical with that of the *Lake Manitoba* of 1878. She was quite a useful ship of thirty-three hundred tons, but she did not last very long, being wrecked in June, 1885.

New competition had arisen on the Canadian run by the decision of the Donaldson Line, which had for some years been doing good work on the River Plata, to try for the Canadian business as well. They were principally interested in cargo and cattle, but even at that date they carried a few passengers and their competition so annoyed the Allan Line that they immediately started a service to the Argentine, putting on to it ships which were infinitely better than anything that the Donaldson had tried.

In 1880 the Baltimore and Ohio Railway Company determined to run a fleet of transatlantic steamers, but in order to avoid high costs they decided to seek coöperation with men who knew the business. Accordingly they approached two brothers, William and Edmund Johnston, who had already had considerable experience in the Black Sea trade, and together they started the Johnston Line, all of whose names ended in *-more*. The Inman steamers *City of Baltimore* and *City of Antwerp* were purchased and renamed *Baltimore* and *Thanemore,* being joined by the *Mentmore, Nessmore, Oranmore* and *Barrowmore.*

The White Star Line felt that it was now strong enough to expand and, having a number of later ships on the Atlantic run, it relegated the pioneer *Oceanic* to a new transpacific service maintained by a subsidiary. It will be remembered that the original idea of her design was the long-distance service and, successful as she was between Liverpool and New York, she was even more so on a run that approximated the one for which she had originally been intended.

Eighteen eighty-one was a wonderful year for new ships on the Atlantic Ferry, and although she was not by any means the fastest, perhaps the most interesting was the Cunard *Servia,* for she is more nearly the forerunner of the modern liner than the faster and more showy ships which were her contemporaries. For one thing safety was made a great consideration, and the traveling public was taught to appreciate the advantages of her cellular double bottom. Her dimensions were 515 by 52.3 by 39.9 feet depth of hold, which gave her a gross tonnage of 7,392 and her compound engines of 9,900 indicated horse power gave her a trial speed of 16.9 knots, while she was able to do the Atlantic crossing in less than 7 days. But such powerful machinery with the means then available meant a lot of space and she was built practically without cargo stowage.

On her advent to the New York run the company disposed of the old *Russia,* still an excellent vessel, to the Red Star Line who ran her for many years as the *Waesland.*

But the man in the street was more attracted by record breakers than super-safe ships, and in that direction he had plenty to talk about. The Blue Ribbon had proved a very tangible asset to the Guion Line, and as they were one of the concerns hardest hit by the American slump they made every effort to keep it. When the

*Arizona* looked like being surpassed by newer ships which the other companies were talking of building, the directors went to Elders of Fairfield for a still bigger and better ship, which was launched in 1881 as the *Alaska*. Like the *Arizona,* she was given four masts and two stout funnels, her dimensions being 500 feet by 50 and her gross tonnage 6,392. Her machinery was a three-cylinder compound of eleven thousand indicated horse power. She began badly by sticking on the ways, but as soon as she got to sea she proved herself a flyer, getting the westward record with a time of seven days six hours forty-three minutes, and the eastward with six days twenty-two hours, which was the first time that the Atlantic had been crossed in less than a week. In addition to being a very fine-looking ship she was also a comfortable one, although like all the other big single-screw ships she vibrated heavily at high speed, and for a time she held up the rot in the company.

She won the Blue Ribbon without any doubt or difficulty, but it was a very expensive proceeding. Her ratio of horse power to gross tonnage was 1.58: 1 against the 1 : 1 of the White Star *Brittannic,* while she burned 253 tons of coal a day against the 96 of the White Star ship.

Not so lucky in the record, although a ship which always attracted affectionate admiration, was the *City of Rome*. When some details of the Cunard *Servia* had been published and it was announced that she would try to regain the Blue Ribbon for the Cunard Company, the Inman Line, which had dropped behind the Guion in the matter of speed, designed this remarkable vessel and commissioned the Barrow Shipbuilding Company of Barrow-in-Furness to build her. Her beautiful appearance, with her long clipper stem, three funnels and four masts, is perhaps the reason why she is so well remembered, for although she was an excellent ship in many ways she was certainly a failure for the purpose which her owners had in mind. The apportionment of the blame for that failure was the subject of bitter wrangling for many years.

It would appear that the principal reason was the amount of interference that was permitted in her design and construction. Steel shipbuilding was beginning to attract attention and it was the original idea of her designers that she should be built of this material. When it was found very difficult to obtain the necessary supplies she was built principally of iron but although this obviously added greatly to her weight no allowance appears to have been made for that and it is only natural that she exceeded her displacement and failed to carry her guaranteed deadweight.

Her dimensions were 560.2 feet between perpendiculars, 586 feet over all, by 52.3 feet beam by 37 depth of hold, giving her an original gross tonnage of 8,415.

When her design was first mooted it was suggested that she should be given twin screws, which would have made her a still more remarkable ship for her day, but after long discussion she was given a single twenty-four-foot propeller driven by six-cylinder compound machinery, three sets of inverted tandem engines. The cylinder diameters were forty-three and eighty-six inches, the stroke seventy-two, and it was intended that she should work up to ten thousand indicated horse power for a speed of eighteen knots.

On her first trial she had trouble with a hot bearing and she was provisionally accepted when she had averaged fifteen and three quarter knots at three quarter power.

She left Liverpool on her maiden voyage on October 13, 1881 — an ominous date considering her subsequent bad luck — was at Queenstown for minor adjustments and finally ran from that port to New York in nine days seventeen hours, the homeward run taking eight days six hours forty-five minutes. As soon as she got home her engines were overhauled and a new propeller fitted in the hope of improving her speed, but the Inman Company were already complaining bitterly that she went down to her draught of twenty-six feet with only twenty-two hundred tons of cargo on board in spite of the thirty-eight hundred mentioned in the contract. Her second voyage was in the spring and altogether she did five under the Inman flag, completing the last on August 15, 1882, her best westward passage was seven days, seventeen hours ten minutes and her best eastward seven days, fifteen hours twenty minutes, which did not satisfy the company at all.

Accordingly she was thrown back on to her builders' hands, Inman's claiming one hundred forty thousand pounds compensation, and the matter nearly led to expensive litigation. Her builders already had business relations with the Anchor Line and after some further alterations they put her under their management, running from Liverpool to New York. She was a popular ship, but she was only one more to repeat the lesson that a single-ship service cannot possibly pay on the Western Ocean. For one season she had running alongside her the Orient liner *Austral,* which had capsized while coaling in Sydney Harbor and which was chartered when she had finished her repairs. In another she had the national record breaker *America,* also a lone ship. But although she was always well patronized, particularly under Captain R. D. Munro, she never paid.

Impelled by the energy and enthusiasm of Herr Lohmann the North German Lloyd had changed its policy in 1880 and placed the order for its first express ship which was to challenge comparison with the crack liners of other nations and which was to found the prosperity of German shipping on the Atlantic. Until then it had been employed almost entirely in the emigrant business and although the ships were good, sound, up-to-date vessels designed as dividend earners they were far behind their French and British rivals.

Lohmann's enthusiasm had been fired by the performance of the Guion liner *Arizona* and he immediately declared his policy of having a similar ship built for the Lloyd. At that time German shipbuilding was trying very hard to get on its feet, and there was a considerable proportion of the Board who wanted the order placed with a German yard for patriotic reasons. Lohmann was inclined to agree with them but Meier took a very firm stand and insisted on their going to a yard which had experience with the construction of such ships, for he declared "it is not only the shareholders' money that is entrusted to us, but also the lives of many persons whose safety is our first duty." The Board wanted a good deal of persuading, but finally the order went to Elders in 1880 and the *Elbe,* the first of the express steamers, was delivered in 1881. The fact that her profits on her first five trips were nearly twenty per cent of her initial cost showed that the decision was a wise one.

She was an iron single-screw ship with Elders' favorite rig of four masts and two funnels, and had a gross tonnage of 4,897 on dimensions 418 by 44.9 by 35.4 feet. Her engines were three-cylinder compounds.

Her owners immediately followed her up with the *Werra* and *Fulda* in the following year, both built by Elders to practically the same design as the pioneer but having a slightly greater tonnage — over fifty-one hundred — and rather bigger engines, which were capable of giving them a speed of seventeen knots against the contract sixteen of the *Elbe*. They also had slightly smaller first-class accommodation and considerably more in the second and third classes.

The Hamburg American people cast very longing eyes on the reputation and profit of these ships but they were beyond their reach and they had to content themselves with a much more modest type on the New York run, although they spent a lot of money improving their cargo fleet and minor services.

The first ship built under this policy was the *Hammonia,* which was ordered on January 1, 1881, and launched on the 13th of September in the following year. Her builders were J. and G. Thomson of Clydebank, later John Brown and Company and the builders of the *Aquitania* and many other famous liners. She was a single-screw iron ship — the choice of iron as a material was undoubtedly a mistake but it must be remembered that supplies of steel were short — being rigged as a 3-masted schooner and having a gross tonnage of 4,247. Her 3-cylinder compound engines developed 4,450 horse power and supplied with steam by 4 double-ended cylindrical boilers were capable of giving her a speed of 16 knots.

Onlookers at her launch who were inclined to be superstitious saw an evil omen in the fact that when she left the ways she had fifty tons of odd wood piled on her deck, so that immediately she touched the water she listed over to forty-five degrees, and the majority of the fifty workmen on board were thrown about, many being injured. But she did not go over any farther and the incident was used to point out what excellent stability she possessed. With accommodation for one hundred and fifty first, one hundred second and seven hundred third-class passengers she combined a reasonable cargo capacity and was a great favorite until suddenly eclipsed by a new tonnage at the end of the decade, when she was sold to the Compagnie Générale Transatlantique for their West Indian service.

But the fight for German-American trade was not to remain long between the two big lines; there was another competitor in the field. Mr. Edward Carr, who had formerly been in the German shipping firm of Robert M. Sloman, started a new emigrant service between Hamburg and New York. It was only interested in steerage passengers and freight and to begin with maintained only two ships, but they were economical and comparatively comfortable and the venture paid well, particularly when the agency at Hamburg was entrusted to Morris and Company, at whose head was a young Hamburg Jew, Albert Ballin, who was later destined to become one of the greatest shipping figures in the world.

There was really plenty of room for a new concern of the Carr Line's character. Not only in the mail and express passenger services things looked very much better for the companies, but the appalling slump of the seventies had been followed by a boom, and emigration, particularly from the Continental ports, was flourishing. Naturally those former emigrants who had weathered the storm in the New World were in a better position to pay for passages than their unfortunate brethren in Europe so that there was another boom in what were known as "prepaids," that is to say, tickets that were bought in the United States and sent across to Europe. Both the North German Lloyd and the Hamburg American Line took full advantage of this wave of emigration, the number of steerage passengers traveling to New York from Hamburg jumping from twenty-five thousand in 1879 to sixty-nine thousand in 1880 and one hundred and twenty-three thousand in 1881, while the superior tonnage which the North German Lloyd possessed at that time made the Bremen figures even more satisfactory.

While the big lines were thus vying with one another to construct the most expensive tonnage, the smaller concerns found that there were plenty of crumbs falling from their table, which could be picked up by a service run on more reasonable rates. The Red Star Line bought the former Cunard steamers *Java, Russia* and *Algeria* and did well with them in the service between Antwerp and New York, which catered to the Continental emigrants almost entirely.

The Cunard Line was satisfied with the results of the *Servia* in the first-class New York trade and set about improving the Boston service to take advantage of the emigration boom. The first ship to be built was the *Catalonia,* a ship of 4,841 tons which was unfortunately under-engined and was not really fast enough for the demands of the Boston service. Otherwise she was an excellent ship which lasted for many years.

Until now the White Star Line had been interested almost entirely in their big or purely cargo ships, but they decided that there was good profit to be made in other directions and started off with an entirely new type with the *Arabic,* a ship of 4,386 tons gross which, while she carried a certain number of passengers, was really concerned principally with cargo and cattle. Later on, hers was a type which meant a lot to the White Star Company and she is particularly interesting as being the pioneer, although her life was short on the line before she was sold to the Holland American and became the *Spaarndam.*

The Carr Line was not the only one that was started in 1881. One which, although small in itself, had a very important position in the technical history of the Ferry, and which deserves well of the historian on account of the foresight of its promoters, was the Hill Line which was formed to run a passenger and cargo service between London and New York. It was generally known as the Twin Screw Line because it introduced that means of propulsion on the Western Ocean. It started quite modestly with the *Notting Hill,* a ship of under four thousand tons, with a speed of twelve knots, and it never worked very much beyond that standard.

Another was designed to tap the very profitable Scandinavian emigrant trade over which the British and German companies were already beginning to quarrel. A party of Danish capitalists, at the head of whom was Mr. C. F. Tietgen, the moving spirit of the Great Northern Telegraph Company and also of the steamship company which was later to gain fame as the Forenede Line. He was essentially a patriot and it was very largely due to his efforts that the ships were built in Denmark.

The first fleet consisted of the *Geyser,* which made the inaugural sailing from Copenhagen to New York in 1881, the *Hecla* and the *Iceland,* ships whose tonnage of about three thousand and speed of twelve knots made them the biggest and finest ships ever built in Denmark. They carried seven hundred passengers apiece in the steerage and about forty in the cabin and a call at Christianssand gave them a fair quota of Norwegian passengers as there were no transatlantic steamships under the Norwegian flag. In addition to the passenger trade the company saw the opportunity of marketing Danish farm produce in the United States, the first cargo including forty thousand head of Danish cabbages, but that experiment was not a success.

The very successful steamship company which had been maintained under the Spanish flag by Señor A. Lopez since the fifties and which had been running regular mail services since 1861, was converted into a limited liability company under the name of Compañia Trasatlantica. It ran ships on the New York service, but it was primarily a national affair and this transatlantic run was apt to be subsidiary to the one to the Spanish colonies in the West Indies.

Messrs. Richards Tweedy and Company of London and Richards, Mills and Company of Liverpool, two allied concerns which had previously been interested in the running of sailing ships, brought out the British and North American Steam Navigation Company (Dominion Line) and ordered two new steamers, the *Norseman* and *Roman.* They were put into the Liverpool-Boston service under the management of George Warren and Company, another firm already well known since the mid-seventies as shipowners on the New England run. They had a number of old steamers, but this acquisition of strength prompted them to improve their fleet and the *Iowa, Missouri, Kansas, Sagamore* and *Sachem* were soon added.

The French saw no reason why they should not take a bigger share, but they could not do it without State assistance. The Subsidy Law of 1881 had a very considerable influence on the individual ships that were intended for the Atlantic, although from the national point of view it was very disappointing. They were getting very anxious about the progress made by Germany at sea, while French shipping and shipbuilding was admittedly in a bad way. The law was therefore made most comprehensive to cover both industries and it provided for a bounty of sixty francs per ton for iron or steel or twenty francs per ton for wood ships of over two hundred tons. In addition steamers could draw twelve francs for every two-hundredweight of machinery worked into their design. This was only to apply to ships built in a French yard, but as the shipowners complained that they were quite unable to get their requirements satisfied at home the Navigation Bounty, one and a half francs per net ton per thousand miles covered, was made to apply to foreign-built ships at half rates.

This very generous bounty caused a number of new ships to be built, while the increase of fifteen per cent. on all iron and steel ships built to the approval of the Navy Department was a godsend to the Compagnie Générale Transatlantique and helped them considerably with their program. During the twelve years in which the law was in force £1,266,000 was paid in building and £3,641,000 in navigation bounties, but the law had one unexpected and undesirable effect in that, French shipbuilders having taken advantage of it to put up their prices, owners decided to ignore the shipbuilding benefits and concentrate on the navigational, buying old ships abroad — some of them very old — and running them under the French flag partially at the expense of the Government.

But the law encouraged the immediate foundation of one new Atlantic company. In 1881 interests in Bordeaux started the Compagnie Bordelaise de Navigation à Vapeur, intending to found a passenger service with two iron screw steamers of about thirty-four hundred tons, the *Chateau Lafite* and *Chateau Leoville*, ships which had quite a good turn of speed and which carried forty or fifty passengers apiece. They were soon joined by the larger *Chateau Yquem*. In the nineties the company amalgamated with another French firm, but in its later life it was not interested in the passenger business.

All these ships seemed to find profit in the emigration boom, for the revival of American prosperity was really remarkable and lost nothing in the telling by the European press and passenger agents. There was, therefore, a tremendous flow to the westward, not only in the steerage but also in the superior classes and American travelers were recommencing the custom of spending their holidays in Europe.

As far as the German lines were concerned, however, they were handicapped by the rate-cutting policy of the Carr Line. Their ships were forcing their way into a position of accepting lower fares, and in May, 1882 the North German Lloyd and the Hamburg American lines retaliated by reducing their steerage rate to £4.10.0, making a still further cut to £4.0.0, in the following year. The Carr Lines were able to go even better than this and still pay.

Having started to improve the Boston service, the Cunard Line carried on the work with characteristic thoroughness. Its decision to suspend its Boston sailings in the late sixties had done its position a good deal of damage in New England, but the same thing had occurred in the winter of 1879–1880 and afterwards the service was very irregular for a time. So it was high time the directors took the matter up seriously and gave Boston a really worthy service, which they began by building the *Cephalonia* and *Pavonia* specially for the run. When the *Cephalonia* arrived in September, 1882, with a comfortable cargo and a number of passengers, she received a great welcome and soon made a name for herself. Built by Lairds of Birkenhead she was at that time the biggest ship to be turned out on the Mersey, her gross tonnage being 5,517. Her compound engines of four thousand indicated horse power gave her a speed of fourteen knots, while her two hundred first-class and fifteen hundred steerage passengers were given very comfortable quarters which were lit by electricity and heated by steam throughout, a fact which was duly noted and appreciated.

The Atlantic Transport Line was founded in Baltimore in 1882, owing to the enterprise of Mr. Bernard Nadal Baker of that port, a keen American business man still in his young days who had turned from a family business connected with chemistry and glass and had devoted himself to transport in the Baltimore Storage and Lighterage Company. He had the idea of forming a new Atlantic company and the Pennsylvania Railroad had the same wish, so that it was only natural that they should get together, and, considering the high costs which were imposed on American shipping by legislation and other factors, decide to keep the company under the

British flag. The first thing was to find a British company who would coöperate with them in this venture.

The firm that was willing to join them was Messrs. Hooper, Murrell and Williams, already well established as shipbrokers and agents, and they started operations with the *Surrey,* a ship of rather less than three thousand tons which was originally designed for the London-Boston cattle trade. She was joined by the *Suffolk* and *Sussex,* both practically sisters of hers, and together they worked up quite a reasonable business, so that in 1886 the Atlantic Transport Line was in a position to have a fleet built to its own ideas.

The Compagnie Générale Transatlantique replied to the fast British and German ships by going to the Barrow Shipbuilding Company of Barrow-in-Furness for *La Normandie,* which started a new series of express steamers and which was the only one to be built in England. Five were designed altogether but she was considerably the first and differed from the others. Her gross tonnage was 6,283 and her compound engines of 8,000 indicated horse power gave her a speed of 17¼ knots on trial, a speed which gave the French navy a high regard for her possibilities as an auxiliary cruiser and caused them to reserve an armament of seven 5.5-inch guns and a number of one-pounder revolver cannon for her use in war time. She was an infinite improvement on the mail steamers, mostly old paddlers converted to screw, which the company ran until her advent. She was soon very popular, the prestige which she brought the French flag fully satisfying the authorities as to the value that they were getting for the heavy subsidy that they were paying on her.

The Italian flag appeared on the New York run in 1882 with the Navigazione Generale Italiana which had been formed the year before by a combination of the Rubattino and Florio lines, already the principal companies in Italy but neither of which were interested in the North Atlantic. The working agreement which these firms reached in 1877 became a complete fusion in 1881 and they immediately prepared to extend their influence beyond the Mediterranean and the Eastern services to which they had until then been confined.

Their first improvement was in 1882 when they started a regular service between Italy and New York with the *Vincenzo Florio, Washington* and *Archimede.* The first two were launched in 1880 and the last in 1881, ships of twenty-eight hundred tons with a speed of twelve knots. They backed these by three smaller steamers from their other services when the trade justified it, and almost immediately afterwards began the construction of three further ships of the *Washington* type.

The agreement between the Compagnie Générale Transatlantique and the French Government was to have ended in 1885, but two years before that the parties got together and after a long discussion came to a new agreement for fifteen years. The agreement, which was signed in 1884, provided for weekly sailings between Havre and New York with a minimum average speed of fifteen knots, very much greater than anything the French had attempted until then. In return for this they were to receive a subsidy of 5,480,000 francs per annum, while in addition the French Government encouraged speed by providing a special speed bonus which might amount to as much as 1,200,000 francs per annum. It was very carefully considered by the directors of the company in conjunction with coal and other costs, the result of this consideration being that they did not think it worth their while to strike for the bonus until they brought the famous *La Touraine* into service in 1892.

The Red Star Line, which had until then been very modest in its tonnage requirements, took a big step forward in 1883 when it went to Cammell, Laird and Company of Birkenhead for two good-sized steamers, *Noordland* and *Westernland.* They were greatly enlarged and improved editions of the *Belgenland* and *Rhynland.* The *Westernland* was the finer ship of the two, having gross tonnage of over fifty-seven hundred and a speed of fourteen and one-half knots with compound engines. The *Noordland* was round about fifty-two hundred tons and had a speed of only thirteen and one-half knots, but they were both excellent vessels, carrying a few first-class and second-class passengers and well over a thousand in the steerage. The *Westernland* had one point of interest in that Cammell, Laird and Company built her in a dry dock instead of on a slip, with the result that she was able to run her trials within a few weeks of taking the water. The acquisition of these two ships greatly strengthened the Red Star Company's hold on the Antwerp service, where the passenger side was booming.

The Dominion Line planned to replace the severe losses which it had suffered, losses as severe as those which had hampered the Allan Line but not so costly in human life, by a new ship of five thousand tons which should be an attraction comparable to the new Allan ships. On the stocks she was bought by the Inman Line who had been disappointed in the *City of Rome* and she went to sea as the *City of Chicago.* Accordingly the name selected for her, *Vancouver,* was transferred to a new ship, 5,149 tons, 14 knots, which was immediately laid down in her place.

The North German Lloyd carried on steadily with their program of extending the *Elbe* class, the next two being launched at the end of 1883 (*Eider*) and early in 1884 (*Ems*). The fault of the *Fulda* class had been a slight under-boilering which was rectified in the new ships.

The Hamburg American Line suffered a disaster in 1883 when the old *Cimbria,* which was still being used on the emigrant service, was sunk in collision with the British steamer *Sultan* off the Dutch coast, three hundred eighty-nine lives being lost. Another loss was the Inman *City of Brussels,* run down by the *Kirby Hall* in the Mersey and sunk with the loss of ten lives.

The Cunard *Aurania* of 1883 was built on an entirely new plan for the company, for instead of the traditional ten beams to the length she was given eight and thus secured very much greater comfort. Her comfort was, in fact, her great feature and was duly advertised, but it must be admitted that she was no beauty and had a very "stumpy" appearance. Her gross tonnage was 7,269 and her original trial speed 17.7 knots; then she was given two additional boilers and made 18.7.

She was an excellent ship to run alongside the *Servia* and *Gallia,* but Cunard had to have something more ambitious to counter the Guion Line. By that time the latter company was very much in the position of the man at the end of a galvanic battery, who would very much like to let go if only he could. The *Arizona* and *Alaska* had put them into the very front rank of the shipping companies at a single bound, and were undisputed holders of the Atlantic

Blue Ribbon. But they had naturally cost a very large sum to build and even on the terms that were granted they were a terrible strain on the weakened finances of the company. It was obvious that two of them running by themselves could not possibly pay, and that a third one must be built in order to maintain a weekly schedule. Without that the construction of the first two ships was simply money thrown away, yet the company was in no financial position to give the order.

But the *Arizona* and *Alaska* were doing so well that the directors determined to risk it, and the Fairfield Yard was very willing to give all the help it could. Accordingly the third ship of the series was laid down, a ship which followed the other two very closely in general design but which was a considerable improvement. The *Oregon* was, like her predecessors, an iron single-screw steamer, but her dimensions had gone up to 501 by 54.2 by 38 feet depth of hold, her gross tonnage being 7,375. Her three-cylinder compound engines, the diameter of the cylinders being seventy and one hundred four inches with a seventy-two-inch stroke, were designed to give her a speed of eighteen knots. These engines were the wonder machines of their day, and were described as being the finest working job ever put afloat. The designed indicated horse power was 12,500, but they actually developed 13,575 indicated horse power at 64 revolutions per minute and were not by any means extravagant, considering their date and character.

The *Oregon* sailed on her maiden voyage across the Atlantic on October 7, 1883, and immediately logged a record of six days ten hours ten minutes from Queenstown to New York. It was then thought advisable to take her off service for the winter as she was far too expensive to run in the slack season and she was accordingly withdrawn until the spring.

But in the meantime the Cunard Line had reason very seriously to consider their position on the North Atlantic. They had allowed their fleet to get on the old side, and their ships made a poor showing beside the Guion and even the White Star and Inman ships. They still maintained their reputation on the Western Ocean, but it was realized that this would not go on indefinitely with inferior material and accordingly the directors got in touch with Mr. William Pearce on the question of new tonnage. They wanted to go very slowly, but he was farseeing enough to realize that the opportunity must be taken at once or it would never recur. He was willing enough to give them generous terms, and would take some of their old tonnage in part payment for the new ships, but he considered it necessary to build two ships and not one and if they did not feel inclined to fall in with his idea he would build them on speculation and run a company on his own. It is more than probable that he would have done so, for he saw the position on the transatlantic service more clearly than anybody else. There was, however, no need for him to put his threat into effect for the Cunard Line decided that they would have the two ships and accordingly the *Umbria* and *Etruria* were laid down.

In outward appearance they differed materially from the transatlantic liners which the yard had been building. Instead of the two funnels amidships and four masts they were given two enormous funnels and three masts, after the fashion of previous Cunard ships that had been built at other yards.

Not only were these two ships noteworthy as record breakers but they are also remembered in every history of naval architecture as the last two "giant" single-screw Atlantic liners. Their design was the result of conferences between the Cunard Line, Elders and the Admiralty, and from the beginning they were intended to act as auxiliary cruisers. The *Umbria* was launched in June and the *Etruria* in September, 1884, their dimensions being 501.6 by 57.2 by 38.2 feet depth of hold, dimensions which gave them a gross tonnage of about 7,130. In addition to their engines they had a full barque rig, the machinery being very much on the lines of that of the *Oregon*. It was a three-cylinder compound installation, the cylinders being seventy-one inches and one hundred and five, with a stroke of seventy-two, and being fed by nine double-ended boilers. It promised 14,500 indicated horse power. Their bunkers stowed twenty-five hundred tons of coal, which were burned at the rate of three hundred fifteen tons per day at full speed and the *Etruria* proved herself capable of averaging over twenty knots for six hours when she was tried. It was really difficult to say which was the better steamer of the two, for they spent the greater part of their careers clipping minutes off their own and each other's records. But they both succeeded in doing the job for which they were specially designed, lowering the record set by the *Oregon*. The unfortunate point was that, before they were on service to do this, that ship had passed into the hands of the Cunard Line, for the Guion Company finally found the job of keeping up the installments too much for them and the yard had to take her back. They transferred her to the Cunard Line in June, 1884, and when the *Umbria* and *Etruria* were commissioned, the three Elder-built ships made the ideal combination for a weekly service.

Having built the *Lake Manitoba* of 3,300 tons in 1880, the Beaver Line had jumped to 4,040 tons in the *Lake Huron* of 1881, and found it so well worth while that in 1884 they went to J. and G. Thomson for the *Lake Superior*. She had a gross tonnage of 4,562, which, although it was inferior to the Allan tonnage with which she was in rivalry, was enough to give considerable comfort to the emigrant trade for which she was designed.

The success of the Guion Line with the Atlantic Blue Ribbon persuaded the National Line temporarily to abandon its policy of confining itself to the emigrant business and to place an order with Messrs. J. and G. Thomson for the *America* which was designed to be a record breaker. She was one of the finest-looking ships ever placed on the Atlantic Ferry, with a long clipper stem and bowsprit, two colossal funnels between two masts, and a graceful stern, while within she was the very last word in comfort and started the innovation of having a handsome dome built over the dining saloon which gave her a very fine appearance. She had a gross tonnage of 5,528 and was engined with three-cylinder compounds and boilers working at a pressure of 95 pounds.

She had no difficulty in breaking the *Alaska's* record with a westward time of six days fifteen hours and eastward of six days fourteen hours eighteen minutes, but her owners were soon to learn that a single big ship cannot maintain a satisfactory or profitable service, and that there is a lot of sound wisdom in the proverb which advises a cobbler to stick to his last. For a time they ran her alongside the *City of Rome* on the Anchor service, but they were lucky to get the greater part of her first cost back by selling her to the Italian Navy as a cruiser in 1886, after which she served successively as a transport, a torpedo school ship, a Royal Yacht and an exhibition ship of Italian industries before she was broken up in 1925.

The American Line which had been founded in the early seventies had done only fairly well on the regular Atlantic business, for really the saloon trade had grown out of ships of little more than three thousand tons gross. For two or three years past they had experienced great difficulty in making both ends meet and in 1884 they were taken over by the International Navigation Company (Red Star Line) who very wisely took out the saloon accommodation altogether and ran them as emigrant carriers and cargo ships, in which rôles there was considerable scope for them.

In 1884 the Irish Shipowners Company, managed by Thomas Dixon and Sons of Belfast, abandoned sail and turned to steam for the first time in the foundation of the Lord Line to New York. Their first ships were small, *Lord Londonderry, Lord Lansdowne, Lord O'Neil* and *Lord Bangor*, ranging from 2,400 to 2,999 tons, but they soon began to build bigger ships at Harland and Wolff's, the *Lord Downshire* of 4,808 tons being the biggest. They were interested almost entirely in the cargo business and did well until they were absorbed by the Head Line of Belfast.

On the engineering side a big step forward was made in 1884 when the Wilson Line fitted its *Martello* in the American service with triple-expansion engines. She was not a big ship—3,709 tons —and was employed principally for cargo carrying, but her machinery, which was similar to that already tried on the Australian run, attracted a good deal of attention and the North German Lloyd immediately adopted it in their next express steamer, the *Aller*.

By this time most of the companies had got the idea that cutthroat competition was not really worth while, if only somebody would take a real lead in establishing stable conditions. Practically simultaneously two conferences were formed. One was the North Atlantic Conference, by British lines who regarded New York as the best seat for its establishment as all the shipping men there knew one another and were not scattered in different ports, as they were in Great Britain or on the Continent. The other was called the Conference of the Northern European Steamship Lines and was a result of a meeting held at Cologne in April, 1885, primarily to discuss whether the companies could not take some of the large profits which were made by the agents. As soon as the owners got together and started talking things over they went very much further than the first idea and when the Hamburg American, North German Lloyd, Holland American and Red Star lines agreed to act together, there was an immediate easing of the situation and the cut European rates rose to a normal level.

This latter was made possible when Mr. Edward Carr, having made his company really dangerous to his bigger rivals, suggested that the Hamburg American Line should buy him out. Albert Ballin, who was really the moving spirit behind the new concern, was very active in these negotiations, and the Hapag was very willing to make concessions in order to be free of such competition.

In July the companies concerned arranged a meeting which was attended by the representatives of the British lines, and decided that a minimum rate of £4.10.0 for the Carr Line and £5.0.0. for all the other companies should be established, this differentiation on account of their smaller ships being all that the Carr Company had fought for. At the same time the emigration agents were recognized and a certain extent controlled, which was one of the great points that Albert Ballin had in mind as a beginning to far bigger and more ambitious schemes.

Having settled these points the conference went on to discuss the part which the British companies were taking in German emigration. This was a part which the German Lines were naturally very anxious to eliminate, but the desire was still beyond their power to fulfill.

The *Etruria* left Queenstown for New York on her maiden voyage on April 26, 1885, being then under the command of the famous Captain Cook. His orders were that he was not to press her in any way and she did the passage in seven days seventeen hours thirty minutes; the eastward run in six days twelve hours thirty minutes. That was not by any means her best; in March, 1887, she lowered the eastward record with a time of six days four hours thirty-six minutes to Daunt's Rock; in June, 1888, she took the westward record with six days one hour forty-seven minutes. In the following month she lowered her average speed on the eastward run to 19.34 knots, with a best day's run of 460 nautical miles, although she took a rather longer route and the elapsed time was 14 minutes more than her previous best.

It is rather interesting to note the subsequent careers of the *Etruria* and *Umbria* as they marked the definite end of an epoch. In 1891 it was suggested that the former's compound engines should be taken out of her and that she should be given the latest triple-expansion machines, but at the same time the Cunard Company was engaged in such an expensive building program that the suggestion was vetoed. It is a curious thing with both the *Etruria* and her sister ship *Umbria* that as they got older their speed improved, and they were constantly lowering their own records, although by that time, of course, newer and more up-to-date tonnage had increased the standard and the actual Blue Ribbon was out of their reach. As an instance of what they could do, however, the *Etruria* on her 313th trip in the summer of 1898, lowered her previous best by an hour.

It has been mentioned that these ships were the last of the giant single-screw liners and even when they were built it was felt that it was putting a huge strain on a single shaft. In 1900, when the *Etruria's* crank shaft was undergoing its usual careful examination, a flaw was discovered and she was held up while new shafting was sent out from Liverpool. On February 26, 1902, however, when on her two-hundredth eastern voyage, she lost her propeller in the Atlantic and commenced to sail to the Azores. Four guineas per cent. were being paid on her at Lloyd's when she fell in with the Leyland Line steamer *William Cliff* which towed her into Horta. Liverpool tugs were sent out to bring her home, while the Cunard company chartered the Royal Mail Steam Packet Company's steamer *Elbe* to bring back her passengers and mails.

The *Umbria* also broke her shaft on one occasion and had to be towed home, while in 1903 a mysterious effort was made to blow her up at New York by shipping on board a huge packing case containing two hundred sticks of dynamite with electric detonating gear.

Finally the *Etruria* was sold to the ship breakers at the end of 1909, fetching £16,500 and being partially dismantled in Cammell Laird's basin before going up to Ward's yard at Preston to be scrapped. The *Umbria* had been put on the sale list about the same time, but at the last moment it was found that use could be found for her and she was accordingly withdrawn and returned to service for a few months, being finally broken up in 1910.

Ever since ocean-going steamers had commenced to fly the Red Ensign the Admiralty had a somewhat hazy idea that they would be useful in war time, and in the early days every steamer was logged with the armament that she would be fit to carry in the event of hostilities. But nothing was done to make the system really practical, so that the ships might be taken up and commissioned with the minimum of waste and delay, until the famous Russian War scare in 1885, when the British authorities were shaken into action by the strong possibility of Russia declaring war and releasing a number of auxiliary cruisers to prey on British commerce.

As soon as the situation became really serious a number of crack liners were commissioned all over the world, and given any guns that were available, no matter how unsuitable they might be. As a matter of course, there were not nearly as many naval officers as were required for service and therefore the Admiralty had to fall back on the Royal Naval Reserve officers who had been trained in such discouraging circumstances, although no doubt in its prejudice it would have liked to have avoided such recognition had such a course been possible.

Most of the ships so commissioned were long-distance liners on the South African, Australian and Far Eastern routes, many of which had to be commissioned in neutral ports where the British Navy maintained a single stationary warship. Of the Atlantic liners, although it would appear that they were by far the most suitable, only the *Oregon* was actually taken up.

She was fast enough, holding the Atlantic Blue Ribbon, but it was obvious that her machinery was terribly vulnerable as it extended well above the water line; the first thing done when she was commissioned was to destroy over a hundred cabins in order to improvise coal bunkers which would give her machinery a certain amount of protection. This work was done with an absolute disregard for subsequent payment, and she was fitted with six 64-pounder smooth-bore muzzle-loaders and four 5-inch breech-loading guns, while eight steam pinnaces replaced a similar number of lifeboats and were provided with dropping gear for torpedoes. The whole of the engine room personnel was retained, and her first and second officers already had Royal Naval Reserve commissions, but a magnificent opportunity of testing the Royal Naval Reserve trained seamen was thrown away and these men were replaced by bluejackets from the naval depots.

Nothing being prepared beforehand, she took some time to arm and commission and by the time she was finished the Russian scare was over. However, even the conservative Admiralty was finally persuaded that it would be an unequaled opportunity of testing the value of the auxiliary cruisers, which had now attracted considerable attention, and accordingly she was put into commission and took part in the subsequent maneuvers with conspicuous success, proving that she was faster than any of the cruisers which the Navy possessed, although her length and single screw were very serious disadvantages when it came to maneuvering in squadron formation. But it made the Admiralty take the matter of auxiliary cruisers very seriously and draw up a proper scheme for their employment.

This scheme did not come into operation until 1887, but it may be mentioned here. While the Admiralty realized that to take up liners as auxiliary cruisers in the haphazard manner that they had followed was only to throw away public money, the companies also realized that a regular subsidy agreement whereby they drew enough money from the Admiralty in peace time to make it worth their while to build ships which would be particularly suitable for auxiliary cruisers in war, would suit their book excellently, and would permit a great improvement in the standard of Atlantic travel.

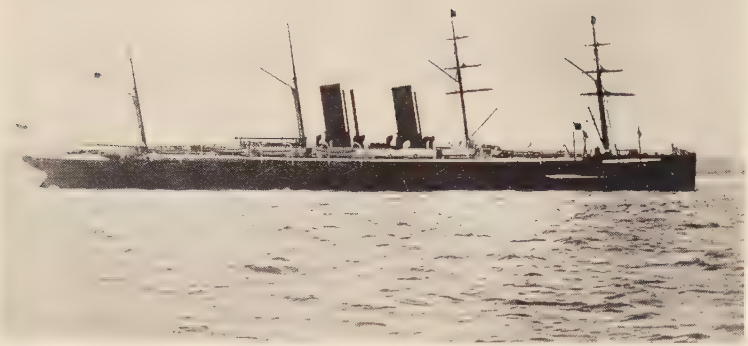
The White Star Line was the first to come forward and offer to build ships which would amply conform with the Admiralty's idea of what an auxiliary cruiser should be, demanding in return that they should be paid an annual subsidy while these ships kept the seas and undertaking to draw at least half their crews from the ranks of the Royal Naval Reserve in peace time.

The Admiralty saw the virtue of this agreement from their point of view, while the Cunard Line was not slow to realize its advantages from that of the shipowners and was willing to go even further than the White Star. Accordingly, they signed a treaty by which they undertook to keep the *Aurania, Etruria* and *Umbria* running in such a way that they would be immediately available to the Admiralty as cruisers should they be wanted, to build gun platforms on their decks, to undertake the maintenance of the necessary gun mountings, to see that at least half their crews were Royal Naval Reserve ratings, and to guarantee that they would fit these ships out as auxiliary cruisers in less than a week should an emergency arise. They also gave the Government certain rights over the other ships in their fleet.

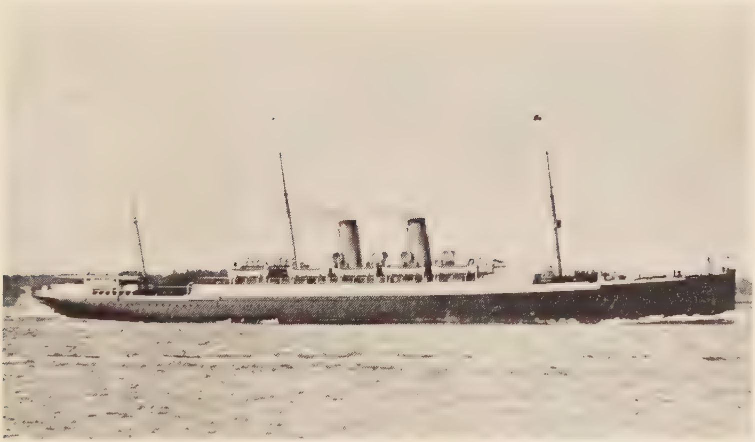
The Cunard and White Star lines having thus come to an agreement with the Government, which afforded them considerable kudos in the passenger business, the Inman Line naturally followed suit and pointed out the valuable features of their ships. Immediately an objection was raised in Parliament that as ninety per cent. of the shareholders of the line were American subjects the reserve would be a very feeble one, but this objection was met by slight differences in the Inman agreement as compared with that of the other companies.

The North German Lloyd made a jump forward in 1885, although they still adhered to the general principles of the *Elbe* design of 1881. John Elder's had become the Fairfield Shipbuilding Company and still retained the confidence of the Lloyds. The *Aller* (1885), *Trave* (1886), and *Saale* (1886) were sisters of 4,806 tons and were very considerable improvements on the previous ones. Their greatest point was that the old compound engines were replaced by triples giving them a speed of from seventeen and a half to eighteen knots while their accommodation also was improved to a remarkable extent, considering the small difference in tonnage. The emigrant accommodation in the later ships was somewhat reduced and the first and second classes improved.

The building of the big express fleet was a very heavy drain on the resources of the Lloyd Company. Before Herr Lohmann started his scheme for high speed ships, a million and a half marks was considered quite a good price to pay for a Lloyd liner and on this capital cost it had an excellent chance of steady dividends. But the *Elbe* cost two and three-fourths million marks, which was a big advance, although she had no difficulty in making a steady profit on it. Then came the *Werra* and *Fulda* costing three million



*Oregon*, Last of the Big Guion Liners, Later Transferred to the Cunard; and the First Really Practical Auxiliary Cruiser on the Atlantic



The North German Lloyd Liner *Havel*, One of Their Early Express Steamers Which Awoke Interest in the Channel Record

The Ill-Fated *La Bourgogne* of 1885, an Improved *Normandie,* Chiefly Remembered by the Tragedy of Her End

The Inman *City of Paris* with One Funnel Removed and Renamed *Philadelphia*, the Great Rival of the White Star *Majestic* apiece, the *Eider* and *Ems* three and a half million, the *Aller, Trave* and *Saale,* whose bill amounted to three million six hundred thousand each, and the *Lahn* at three million eight hundred thousand. Finally the *Havel* and *Spree* averaged five million. These figures are the bare building cost for the hull and machinery and make interesting comparison with the cost of a modern liner to-day. The furnishing and decoration was another item dealt with separately.

There were many people who disagreed with the policy of building these fast ships, for they maintained that they were entirely losing sight of the business which had originally made their prosperity. The fact that the financial results of the company went down suddenly — although this was due to their commitments on the Australian and Oriental services under Bismarck's Imperial Mail Subsidy Scheme and had nothing whatever to do with the North Atlantic — supported these malcontents and in 1888 the company started a new policy of building intermediate ships with a big cargo capacity and accommodation for a large number of emigrants, while at the same time they carried a certain number of passengers in the better classes and maintained a steady thirteen knots, which was better than most intermediate liners of that time. The *Dresden* and *Munchen,* each having a gross tonnage of about forty-five hundred with an indicated horse power of twenty-six hundred, were the first ships to be built under this scheme and were designed to be interchangeable between the North and South American services. They carried 580 passengers in the first and second classes and 1,759 in the steerage, where, as may be imagined from their size, the accommodation was not luxurious. But they served their purpose excellently and were soon followed by several other ships of similar type, including the *Stuttgart, Karlsruhe, Darmstadt, Oldenburg* and *Weimar.*

When the Hamburg American Line was offered the opportunity of buying the Carr Line for two and a half million marks they did not feel justified in doing so with their financial troubles, so delayed closing with the offer until early in 1886 when they decided to renew negotiations, just too late. For the Carr Line had just amalgamated with Robert M. Sloman's American service and formed the Union Line, with Albert Ballin exercising a large measure of control. Fortunately for the Hapag, Ballin, with his mind fixed on a golden future, was quite inclined to come to an agreement with them rather than to go on cutting prices. The directors of the Hamburg American Line regarded it as a great personal triumph but it gave Ballin the control of their passenger department which was the stepping stone to the control of the company.

The Hapag had turned the corner in 1886 and after having been forced to pass the dividend for two years paid four per cent. increased to six per cent. next year. This latter was entirely to the credit of Albert Ballin and was a result of the amalgamation with the Carr Line and the agreement with the British. As soon as funds were available it was agreed that the fleet was badly in need of modernization and the question of express steamers came up for consideration. The North German Lloyd had certainly done well with them, but the Hamburg American had dropped them entirely since the third *Hammonia*. They were fully justified in doing so then, but some of the Board maintained that times had changed and that they ought to go in for them again. Against this many were doubtful as to their possibilities on account of the increased overhead, fuel and wages cost, while the saloon trade was limited to four months in the year. Ballin's influence settled the question in favor of the new ships, for he maintained that it was their duty as Hamburg merchants and aimed at the company making an international appeal instead of a purely German one.

The question was finally decided at a Board meeting in October, 1887, and for their construction it was necessary to raise five million marks of new share capital and ten million of four and a half per cent. debentures, partly for the new tonnage and partly to wipe off the existing loan. Plans were immediately prepared for the new ships, beginning with two of round about seventy-two hundred tons with a trial speed of twenty knots. One contract went to Laird of Birkenhead, while the other, after considerable discussion, went to the Vulcan Yard of Stettin.

There were many who shook their heads over the big risk that was being run by entrusting the construction of such an important ship to a German yard. It is true that the shipbuilding of the country had made great progress, particularly under naval encouragement, but they had not tackled anything as big as the proposed ship and there were many people in Hamburg who would rather have seen somebody else making the experiment. The Board of the Hapag took this into consideration, but at the same time they fully realized the prestige that was to be gained and they were quite sensible of the strongly expressed wishes of Prince Bismarck and the Crown Prince Wilhelm who was afterwards to become Kaiser Wilhelm II. So the contract was given, one of the great steps in the progress of modern German shipbuilding.

Another big move of Ballin's was to hit the English companies hard in the Baltic emigration business. They had secured this almost exclusively to themselves, running services of small ships across the North Sea, but Ballin wanted it for the Hamburg American Line and accordingly he persuaded a reluctant Board to start a new service from Stettin to New York by way of Gothenburg. Two ships were purchased for the purpose in Holland.

This Baltic service was intended to be nothing more or less than a threat to the British companies in order to force them into an agreement and was never intended to be a permanent service. Ballin banked on a promise of its withdrawal, made at the right moment, being sufficient to persuade the English companies to meet his point of view on the immigration question, but if it was not he was quite prepared to fight the matter out and he let it be known that unless a compromise was reached, and a compromise very much in favor of the Germans, he would start a feeding service from Liverpool to carry emigrants down to his ships at Havre and would pick up other steerage passengers at Plymouth. This threat produced a good deal of derision in the Press, for the comforting assurance was given that no British settler would be unpatriotic enough to travel in a German ship, and at the same time a counter threat was made to reduce the steerage rates from Hamburg to New York, by way of a British port, to thirty shillings.

Both parties were doing a good deal of bluffing in this argument, the really solid fact being that the Scandinavian service was doing a lot of harm to British interests, and finally a compromise was arrived at. The fighting service was withdrawn and the British companies agreed to raise their steerage rates from Hamburg to £4.5.0. and to establish a minimum of £2.10.0. from Liverpool, Glasgow and London. Other concessions of minor importance were made by both parties. At the same time the Union Line raised its steerage rate to £4.10.0., the Hamburg American to £4.15.0. and the North German Lloyd to £5.10.0.; £5.0.0. in the smaller Baltimore steamers.

Towards the end of 1886 the Inman Steamship Company, which had been in financial difficulties for some time, was compelled to take drastic steps. It had carefully considered the circumstances and had decided that if further debentures were raised, sufficient to build a new steamer that would give it back the Blue Ribbon, it would be restored to its old place and profits and accordingly preparations were made to issue one hundred thousand pounds worth of six per cent. mortgage debentures. Unfortunately the market saw no attraction in shipping loans at that time and the issue was a failure, greatly increasing the embarrassment of the company.

Accordingly a general meeting was held on the 18th of October to discuss the matter, but it was very plain that there was no hope of the company being able to carry on in its existing form. The secured creditors amounted to £174,500, the unsecured to £91,000. The fleet was valued at £168,500 but it was mortgaged for more than that, while the other assets only totaled £11,500. It was therefore determined unanimously to go into voluntary liquidation with the idea of a sale to "another company" which was well known to be the International Navigation Company, or Red Star Line as it was more usually called. As a matter of fact, arrangements were already practically complete, the price agreed being £205,000, from which was to be deducted the very considerable sum already owing to the International Line. The Inman shareholders had to give a definite answer of yes or no within two or three days and there could be no doubt as to what their answer would be.

At first it was suggested that the new company should be called the International, Inman and American Line, but this very cumbersome title was dropped and the Inman and International Steamship Company Ltd. was eventually floated within a few days of the sale being arranged. No change was made in the management or services.

The death of S. B. Guion in 1885 was a severe blow to his company, for with all its troubles it had a big hope of salvation as long as his genius was at the head of affairs, and in consequence it was changed into a limited liability company towards the end of 1886, its official name being the Liverpool and Great Western Steamship Company Ltd., although of course it was still known as the Guion Line.

When they purchased the *Oregon* it was the intention of the Cunard Line to put her and the *Gallia* on to the Boston run, making it a fast service and restoring it to the importance that it possessed when old Samuel Cunard founded it.

Unfortunately the career of the *Oregon* on the Cunard service was a very short one, for on March 14, 1886, off Fire Island, she was rammed by an unknown schooner, which is supposed to have been the *Charles Morse,* as that vessel disappeared about the same time. At the time she was carrying 641 passengers and a crew of 255, in addition to nearly 600 bags of mails, and it was soon seen that she had been hit in her most vulnerable spot, the watertight doors were jammed with coal dust in their sills and she was a doomed ship. Luckily the North German Lloyd steamer *Fulda* arrived in the nick of time and by excellent seamanship saved all hands and a considerable proportion of the mails. It is worth remembering that, although the Cunard Line offered to compensate them for the time lost and coal expended, the Lloyd directors refused to take one penny in payment and regarded their splendid action as being merely an incident in the brotherhood of the sea.

The Atlantic Transport Line having got quite a reasonable footing in the Atlantic trade by 1886, Mr. B. N. Baker and the other directors set about building up a fleet to their own requirements, beginning by going to William Gray and Company for the *Maryland.* Of the original fleet with which they had started operations in 1882 the *Suffolk* and *Sussex* had both been wrecked: the *Surrey,* which survived, was renamed *Michigan* and the company started its present policy of renaming all its ships with tallies beginning with the initial "M."

The *Maryland* was followed in 1887 by the *Minnesota* of 3,216 tons, followed rapidly by the *Maine, Missouri* and *Montana,* all of them built by Harland and Wolff of Belfast which started the long connection between the two firms. The Atlantic Transport business having got rather too big for the original firm of Hooper, Murrell and Williams, Mr. A. S. Williams started a new concern known as Williams, Torrey and Field for no other purpose than to manage the affairs of the Atlantic Transport Line.

In November, 1886, the companies on the North Atlantic had to fight hard to maintain their position against the British Post-office, and to take a firm stand as to what they would put up with. The Postmaster-General gave a perfectly proper six months' notice to terminate the agreement with the Cunard, White Star and Inman companies, and then wrote that he proposed to take up the most efficient vessels month by month and to pay for the mails carried at a very low rate. The Cunard and White Star lines immediately wrote, rejecting this offer, and pointed out that the mail service that they maintained during the winter months, when their fast ships could only be run at a loss on commercial working, ought to be taken into consideration. They suggested that under the system of monthly contracts which the Postmaster-General suggested, the fast steamers could not be sent across during the winter months, and that a very irregular mail service would result.

The contention that the experience of the United States Post-office had shown that the new scheme was practicable was put aside by pointing out that the Americans could not have succeeded had it not been that they had the first-class British ships, sent across under the British mail contract, to rely upon for the eastward carriage of mails in the winter. For another thing, in New York the mails were timed to suit the sailing of the steamers, so that they were not involved in any delay or expense. On the other hand at Queenstown the mails were put on board at a fixed hour and as the ship had to leave Liverpool when the tide served, it often had to wait ten or twelve hours in the Irish port, a big expense to the owner. Also it necessitated the maintenance of an agency in Queenstown.

The two companies were not unreasonable and were quite willing to agree to a joint mail service at a cut price if the Post-office would agree to a regular contract. This correspondence resulted in a good deal of arguing and bargaining without any definite result and finally the authorities arranged that the Tuesday mail should be carried from Liverpool by the Inman Line, on Thursday from Southampton by the North German Lloyd, and on Saturday by the Guion Line from Queenstown, leaving out the Cunard and White Star.

They were unwilling to offend the premier companies too bitterly and agreed that this arrangement should be for three months only. To begin with, the White Star and Cunard lines proposed to keep out of this arrangement altogether; the *Umbria* left Liverpool without a bag of mail, the first time in the history of the company, and had the good luck to encounter such bad weather that her magnificent sea-keeping qualities permitted her to beat the Guion Liner *Alaska,* with the mails on board, by nearly twenty-four hours. This made American business interests take a hand in the game and protest lustily against the British arrangement which inconvenienced them, while the fact that the *Etruria* logged a record at the same time did not help matters. The result was that public opinion forced the Post-office to come to a fair agreement with the companies, saving its face by bringing the naval side into prominence. This agreement gave four dispatches a week.

While the British companies were thus disputing with the Post-office, the Compagnie Générale Transatlantique entered into a new fifteen-year contract for the New York service, to be maintained by fifteen-knot ships which were subsidized for practically five and a half million francs per annum. The French Government realized that speed was making a big difference to their position and therefore agreed to pay the company an extra twelve francs per gross ton per annum for every tenth of a knot which each ship had maintained on the average throughout the war. This bonus for speed caused the Compagnie Générale Transatlantique to build a magnificent fleet of four new steamers, *La Gascogne, La Bretagne, La Champagne* and *La Bourgogne,* the last named of which was to live in Atlantic history on account of her tragic end.

*La Champagne* and *La Bretagne* were built at Saint Nazaire while *La Bourgogne* and *La Gascogne* came from the Mediterranean Yard. There was little difference between these four ships, the gross tonnage varying from 7,085 to 7,395, while their single-screw engines indicated 9,800 horse power. *La Bourgogne* was rather the best of the batch, establishing a record of 7 days 9 hours between Havre and Sandy Hook, averaging 17.91 knots. In order to compare this with the records set up on the regular Liverpool route, measured from Queenstown to Sandy Hook, it is of course necessary to make allowance for the extra distance and at her speed the passage from Queenstown would have occupied six days thirteen hours, good steaming but not equal to that of the *Umbria* or *Etruria.*

The wonderful progress made by the New York services aroused the envy of the Canadian authorities and in 1887 they started the slogan which was to cause a lot of trouble in the future — "Twenty Knots to Canada." They were not satisfied with the Allan Line mail service and in formulating a new contract they insisted that this average should be maintained and also that the mail sailings should be so arranged that a call could be made at a French port.

The Allan Line protested that they could not bid for the contract on such conditions but on the other hand they were willing to run steamers at an average speed of seventeen knots for a subsidy of one hundred four thousand pounds per annum. A London firm, Messrs. Anderson and Company, grasped the opportunity and offered to run a twenty-knot service, signing a contract with the Canadian Post-office to that effect. Practical shipbuilders all over the country, in addition to shipowners with an experience of the Canadian trade, insisted that such a service was not possible but the Canadian authorities knew better. So the contract was signed, but Messrs. Anderson and Company failed to raise the necessary capital and the whole matter fell through.

The subject was revived in 1889 when the Canadian Parliament voted half a million dollars per annum as a subsidy and Mr. Bryce Douglas of the Naval Construction and Armaments Company which is now Messrs. Vickers, offered to build twenty-knot ships. But he wanted three-fourths of a million dollars per annum for ten years, and the Canadian Government would only agree to such a sum for five years, reducing the subsidy to five hundred fifty thousand dollars for the rest of the time. An agreement might have been reached had not Mr. Douglas died, although the service could not have been a success on such terms.

The matter then remained in abeyance until 1891.

As being much more suitable for the Canadian trade, the Beaver Line went to Laing's of Sunderland for the *Lake Ontario,* a ship of 4,502 tons which proved herself very popular.

The construction of new express steamers already mentioned was only part of the Hamburg American plans, and in order to promote them in full Albert Ballin and Johan Witt visited New York in 1887. The first result was the end of Kunhardt and Company's New York agency, the Hamburg American company taking over the freight business immediately and following it by opening their own passenger office at Number 37 Broadway, in charge of Mr. Karl Shurz.

At the same time the company's terminals at Hoboken were greatly extended, but there was a good deal of trouble at the Hamburg end and a lot of friction with the Hamburg Government which was intent on the development of the Free Harbor. The Hapag was forced to sell its landing stage at St. Paoli to the State and in its place to lease a berth in the Free Harbor on the opposite side of the Elbe, the berth that was afterwards known as the Amerika-Kai. In many ways it was less convenient, but it had the advantage of collecting all the company's facilities in one place and within twelve months of the new quays being opened they had to be considerably extended.

The last of the famous series which the Fairfield Yard built for the North German Lloyd was the *Lahn* of 1887, once again a considerable improvement on the previous type, *Aller, Saale* and *Trave.* Her triple-expansion engines were given five cylinders instead of three and she was intended for a sea speed of eighteen and a half knots although she managed nearly a knot more on trial. Her gross tonnage was 5,681 and her displacement 7,700 on a draught of 22 feet. It is not surprising that the German Navy, which was then beginning to look to its material, regarded her as an auxiliary cruiser and planned to arm her with eight 5.9, four 4.7, two 3.4 and sixteen small quick-firers and machine guns, while her davits were strengthened to carry two second-class torpedo boats.

There was a growing feeling in Germany against the placing of these important liner contracts in British yards, a feeling that was backed up by Count Bismarck whose Imperial mail subsidy contracts insisted on the home yards being favored. It was on that account that the *Lahn* was the last Lloyd steamer to be built on the Clyde, the company turning to the Vulcan Yard at Stettin for their next ships.

The Royal Exchange Shipping Company Ltd., better known as the Monarch Line, had not been doing particularly well lately in the passenger business which it started in 1881 and in 1887 it was in such financial difficulties that its directors were glad enough to sell out. It was bought by a combination of the Wilson Line of Hull and Hill's Twin Screw Line and under their ownership continued to run its service between London and New York.

The year saw yet another venture. T. Hogan and Sons of New York started a new line across the Atlantic known as the Manhanset Line, kept under the British flag for the purpose of reducing expenses. The first fleet, which remained unaltered for several years, consisted of the sister ships *Montauk* and *Mineola,* small ships of rather more than twenty-four hundred tons which did a good deal of cargo business right down to 1912 but which never prospered as passenger carriers.

Considering the circumstances, the Hamburg American program of express steamers was rather a daring one. It began with the *Augusta Victoria,* built in 1888 by the Vulcan Yard. It is rather amusing to note that although she was named in honor of the German Empress they spelt her first name wrong and left it wrong for many years, quietly altering it to *Auguste,* as it should have been, when she was quite an old ship. Her gross tonnage was 7,661 and her triple-expansion engines gave her a speed of 20 knots on trial and a steady 18 in all conditions. Then came the Laird-built *Columbia* in 1889, with a tonnage of 7,383. She was not so fast on trial and exceeded her contract horse power, but improved steadily. The Fairfield Yard was responsible for the *Normannia* of 1890, a considerably larger steamer of 8,250 tons on a length of 500 feet. Her contract speed was 19 knots at sea, but she did over 21 on trial. Finally there was the Vulcan *Furst Bismarck,* 8,874 tons. Like the *Normannia* her contract speed was 19 knots, but she did 20.55 on trial.

Such fast tonnage was distinctly superior to their Bremen-owned rivals on the Southampton run and although their passages could not compare with those of the crack Liverpool packets they were sufficient to arouse interest in the secondary competition on the Channel route. The *Augusta Victoria* was the first to show what she could do, her record, allowing for the Queenstown time difference, being seven days two hours thirty minutes, in spite of the fact that there was some delay owing to fog and heated bearings. A few months afterwards she crossed in six days seventeen minutes, not far off the fastest on record.

The *Columbia's* famous eastward passage was equal to six days four hours from New York to Queenstown, a clear Channel route record, and a year afterwards she crossed from Southampton to New York in six days sixteen hours two minutes.

Considering her excellent trial speed the *Normannia* was inclined to be disappointing for the first four years of her life, although she was a very consistent performer and a thoroughly good investment. Then, in the middle of 1894, she showed a remarkable turn of speed, six days eleven and a half hours from New York to Southampton. The *Furst Bismarck* was remarkably fast on the eastward pasage, lowering the record twice in 1891 and finally in 1893.

All these ships had extraordinary after careers. The *Augusta Victoria* was lengthened sixty-one feet in 1896 and her speed increased by a knot. During the war between Russia and Japan she was purchased by the Russian Volunteer Fleet and renamed *Kuban,* going out with Rozhdestvensky and being lucky to escape the disaster of Tsushima. The *Columbia* and *Normannia* were sold to the Spanish Navy in 1898, to be used as auxiliary cruisers in the war with the United States. The price given was four hundred fifty thousand pounds for the two and they were renamed *Rapido* and *Patriota.* Unfortunately, with typically Spanish method, they were not finished until after the war was over. Then the *Columbia* was sold back to the Hamburg American, to be resold to the Russian Volunteer Fleet at the same time as the *Augusta Victoria* and to become the auxiliary cruiser *Terek.* The *Normannia,* however, was sold to the Compagnie Générale Transatlantique who kept her as *L'Aquitaine* until 1906 when she was scrapped.

The *Furst Bismarck* was sold to the Russian Volunteer Fleet shortly before the Japanese War, renamed *Don* and later *Moskva.* Before the Great War she was sold to the Austrian Navy and became the depot ship *GAA,* housing the crews of German submarines in the Adriatic during the war. After the Armistice she was bought by the Cosulich Line and for a short time ran on the North Atlantic as the emigrant carrier *San Giusto.*

For this program the Board decided to ask the shareholders to sanction an increase of capital of five million marks after a good deal of careful consideration and doubt, but when it was put to the general meeting one of the shareholders rose and suggested that ten million would be more appropriate, and that increase was voted with enthusiasm.

Among the smaller liners were some interesting additions. The Leyland *Bostonian* was a very considerable improvement on the company's latest and best ships, which had been built six years previously. They came from the North East Coast; the *Bostonian* started the connection with Messrs. Harland and Wolff of Belfast which was to last until the present day. She was rigged as a four-masted schooner and had a gross tonnage of 4,473.

In the early eighties the White Star Line had found considerable profit in their up-to-date fast cargo ships and they continued the policy with the *Cufic* of 4,639 tons and the *Runic* which was slightly later and had a rather larger gross tonnage. They were purely cargo ships, with big accommodation for cattle, but they could be converted into emigrant carriers should the need arise.

After carefully watching the results of the Cunard ships the White Star Line determined to return to the record-breaking class, but announced its intention somewhat prematurely. The Inman reply, made possible by their American capital, was prompt and the ships were actually built ahead of their rivals. They were the famous pair, *City of New York* and *City of Paris,* known both under those names and under their later names of *New York* and *Philadelphia.* J. and G. Thomson built them from the design of Sir John Biles and when they were finished they were undoubtedly the most handsome vessels afloat, with the exception of the *City of Rome* whose perfect balance they lacked. They were given the Inman's favorite long, clipper stem and bowsprit and had the distinction of being the last Atlantic liners so to be fitted. Originally they had three funnels and three masts and looked very fine indeed, but later something was lost by the suppression of one of the funnels and the enlargement of the other two. Finally one of the three masts was suppressed shortly before they finished their careers and they looked horrid.

They had dimensions 527.6 feet between perpendiculars — 560 feet over-all with their long fiddle bow — by 63.2 by 39.2 depth of hold, which gave them a gross tonnage of 10,670. Their passenger accommodation may be quoted roughly as five hundred forty first, two hundred second and one thousand third, but this was constantly being changed. Designed as auxiliary cruisers, they were given a balanced rudder which with all its gear was below the water line.

To drive these ships at the 20 knots for which they were designed they were given twin-screw triple-expansion engines of 18,500 indicated horse power, working at a pressure of 150 pounds and supplied by 9 boilers.

In view of what happened many years afterwards, it is interesting to note that they still have the reputation of being the most perfectly sub-divided Atlantic liners ever put afloat. They had fifteen transverse bulkheads which went right up to the saloon deck, about fifteen feet above the waterline. All these were unpierced, there being no water-tight doors at all below the saloon level. In a subsequent accident one of these ships had the longitudinal bulkhead between the two engine rooms pierced by flying machinery, flooding the two rooms, but even then she was not in the slightest danger of foundering. Boats for all were also provided.

The essential differences between the White Star and the Inman ships is shown by their dimensions, the ratio of length to beam in the former case being 9.7 to 1 and in the latter only 8.3. Yet the clipper-stemmed Inmans gave the impression of greater length than the strictly utilitarian *Teutonic* and *Majestic*. As regards engine power, in the White Star ships the proportion of indicated horse power to gross tonnage was 1.7; in the Inman ships 1.8.

They were not nearly as sightly as their Inman rivals, but they were fine ships. They had three masts and two funnels, straight stems and counter sterns. On dimensions 565.8 by 57.8 by 39.2

their gross tonnage was a shade under 10,000. Their three-cylinder triple-expansion engines, driving twin screws, indicated seventeen thousand horse power for twenty knots and were supplied by twelve double and four single-ended boilers. Their passenger accommodation was originally for three hundred first, one hundred seventy-five second and eight hundred fifty third-class passengers and they could stow four thousand tons of fine cargo. At full speed on the Atlantic they burned three hundred twenty tons of coal per day.

In the 1889 naval review on the Solent the public had the chance of seeing what they were getting in return for the fifteen shillings per gross ton per annum which the Government was paying for the services of the *Teutonic* and *Majestic,* for the former ship was given her armament and took part in the review equipped as an auxiliary cruiser. Her possibilities won very general approval, for it must be remembered that in that day the British Navy included only thirty-one cruisers with a nominal speed of eighteen knots and over, the great majority of which were under construction and some of which could not be relied upon to get anything near their legend speeds.

It was originally intended to arm the *Teutonic* with twelve 5-inch guns, one of the earliest breechloaders in the British service. The mountings of these were fixed six on either side of the promenade deck, but at Spithead she only mounted four of them, one at each corner of the deck, and the Navy would have been hard put to it to have found the balance of the guns that were supposed to be always kept in reserve for her use. Later modern 4.7's were substituted for the cumbersome 5-inchers.

The ex-Kaiser Wilhelm II was the guest of the country on that occasion and he took the opportunity of examining the *Teutonic* very minutely indeed, for he had already carefully considered the possibility that the German mercantile marine should include a number of liners sufficiently fast to act as cruisers in war time. He approved of her thoroughly and in his speech said he had not the least doubt that she would prove a very useful cruiser, a prophecy that was subsequently fulfilled to his own disadvantage. It is interesting to note that it was on this visit to the *Teutonic* that he realized that helm orders were given against the ship's head, that is to say, the order to port the helm put the ship's head to starboard. He immediately remarked that he would not have anything so illogical in his own merchant service, starting the helm order controversy which caused so much trouble later.

The big Inman and White Star ships did not prevent a good deal of attention being paid to the new Hamburg American express steamers, which were certainly excellent vessels of their type. They were right up-to-date in many particulars, including the use of electricity for light, signaling and ventilation, but there is no doubt that their decorators made a very big mistake in their department. The decoration was garish to a degree, particularly in the matter of mirrors, but although they were intended to attract the American first-class passenger they were only very partially successful. Later this point was realized and their decorations were remodeled.

This, however, was the only point in which they failed and in any event it only applied to one type of passenger. They were a great asset to the company as a whole and the operations of the first two permitted the company's dividend to be increased from ten to eleven per cent.

When they were complete they permitted the Hamburg American Line to maintain an excellent service. One of the express ships left Hamburg every Thursday, a mail steamer every Sunday and one of the Carr-Union emigrant steamers every Wednesday. At the same time they made some of the older ships surplus to requirements and they were sold out of the service, the famous old *Hammonia* going to France.

The average price of a first class ticket was then twenty-two pounds, of a second class twelve pounds, and of a steerage passage only four guineas. At that time the Hapag Company was encouraging its officers by giving the captain a percentage of the earnings of the ship, which might well increase his salary by thirty-three per cent.

In 1889 they started a new passenger and freight service from the Elbe to Baltimore, a service which was later to become very important and to bring into being a very interesting type.

All these developments were, of course, directed expressly against the North German Lloyd, but that concern was well able to look after itself and finished the decade in fine style by starting a new series of express steamers, considerably bigger than those they had obtained from the Clyde, at the Vulcan Yard at Stettin. Only one was launched in the period, the *Kaiser Wilhelm II* of 1889, but the *Spree* and *Havel* were only a few months behind her. They were two quite distinct types.

The *Kaiser Wilhelm II* was in a class by herself, 449.6 feet long by 51 beam, having three-cylinder triple-expansion engines. Her gross tonnage was 6,990 and she was rigged as a four-masted schooner with two funnels like the Fairfield ships. The *Spree* and the *Havel,* on the other hand, were quite different, although the tonnage was roughly the same. Their dimensions were 463 feet by 51.8, and their engines were five-cylinder triple-expansions giving them a speed of 19 knots. The fault of the *Kaiser Wilhelm II* was her low speed of only 16 knots, a fault which caused her to be rebuilt and re-engined at very considerable expense when she was still quite a new vessel.

A very considerable saving in the mail times was arranged by a new agreement which the German Post-office reached with the Lloyd Company, although the scheme did not come into operation for two years. In 1891 it was arranged that the mails should be sorted at sea, a scheme which necessitated special facilities on board and the carriage of both German and American post-office officials. On the westward run the German senior officer was in charge; eastward the American took over the command. It was an arduous job, for all the officials had to reckon on working eleven hours a day as a minimum, but it was regarded as interesting work and there was no lack of applicants.

The Red Star Line greatly advanced the prestige of its fleet by getting delivery, from Messrs. J. and G. Thomson, of the new *Friesland*. She was a single-screw ship, it is true, but she had a gross tonnage of 7,116 and her triple-expansion engines gave her a very good turn of speed. With her they tried the experiment of running a Mediterranean service but it did not last for long.

With all this wonderful development in material it is probable that the year 1889 is remembered by the majority of people connected with the sea more for a disaster to a very unimportant ship than for all the progress made. The Thingvalla steamer *Danmark,* carrying six hundred sixty-five emigrants from Copenhagen to New York, broke her shaft and was found helpless by the Atlantic Transport Liner *Missouri.* She first attempted to tow her into the Azores, but the weather rapidly got worse and the tow began to leak. It was therefore decided to transport her passengers to the Atlantic Transport ship, a very difficult business when they were panicking badly and the sea was too bad for boat work in the most favorable circumstances. However, Captain Hamilton Murrel and his people worked like Trojans and finally every soul was saved, although the *Missouri* had to jettison a certain amount of her cargo to make room for these extra passengers and had only sufficient provisions to get them into the Azores. It was rightly regarded as one of the finest rescues and a magnificent tribute to the efficiency of the Atlantic Transport ships and their crews.

It may be mentioned that the officer in charge of the boat work in this rescue was Chief Officer Thomas S. Gates, later to become the Commodore of the Atlantic Transport fleet and one of the best known captains on the Western Ocean.

# *Chapter VII: The Nineties*

The next two decades are of great importance in the story of the Atlantic, for they carry the revival of the American flag, the remarkable rise of Germany and the struggle which resulted in Britain restoring herself to her old position when she seemed doomed to eclipse.

One of the first actions to be noted, the beginning of a policy which was to change the whole aspect of Atlantic shipping, was taken by the United States Government.

For a long time it had been felt that immigration into the United States required a good deal of supervision, particularly at the Port of New York, which was the principal gateway. In 1890 therefore the duty of inspecting and supervising immigration was placed under the Federal Government and the effects of the ruling were soon felt.

The rise of Germany on the sea, and the prestige which the country gained in consequence, started at the very beginning of the decade. Progress had been made in the eighties and the two German companies had made many friends by their excellent management, but while they got all their big tonnage from British yards their progress was incomplete.

It was a great day for the North German Lloyd Company when they contrived to put their first German-built express steamer on to the North Atlantic, the *Spree,* which came from the Vulcan Yard at Stettin. On a gross tonnage of 6,963 she had accommodation for 244 first, 122 second and 460 third class passengers. On trial she did 20.1 knots, while her single-screw triple-expansion engines were developing 13,000 horse power at 70 revolutions. She was put under the command of Captain Willigerod, one of the best-known masters in the German Merchant Service. The *Spree* was closely followed by her sister the *Havel* and they made an excellent advertisement for the country. The Hamburg American countered their influence to a certain extent by getting out the *Normannia*, built by Fairfield Yard, which was practically a sister to the Laird-built *Columbia* of the year before. She had a gross tonnage of 8,250, triple-expansion engines and accommodation for a number of passengers in four classes. On trial, just before she went on service, her twin engines indicated 16,352 against the contract of 14,000, her mean speed being 20.78 knots against the 19 guaranteed. Naturally this was well advertised and attracted attention to her, and her owners made the most of her magnificent appearance with three funnels and two masts. Her outward maiden trip was made at an average speed of 18.45 and her homeward at 18.49 in spite of a slight collision with an iceberg which damaged the plating of her quarter.

More important than any of these was the White Star liner *Majestic* which was put into service alongside the *Teutonic,* already described, in April, Captain Parsell transferring to her from her sister. She did her maiden passage westward in 6 days 10 hours and eastward in 6 days 8 hours 58 minutes, which was the best maiden voyage recorded to that date, the average speed being 18.31 knots. She did not attempt to lower the record until she had got her engines well worked in.

The keen rivalry between the *City of New York* and the *Teutonic,* which was to last as long as they were both in the front line, began with the thirteenth passage of the White Star ship and the seventeenth of the *New York*. The *Teutonic* left Queenstown at 2.58 P. M. and the *City of New York* at 2.45 P. M. on the 4th of September, arriving at New York on the 10th of September after a passage of 5 days 20 hours 54 minutes and 5 days 29 minutes respectively. The average speed was roughly 19½ knots, the distances steamed being 2,774 miles by the *Teutonic* and 2,779 by the Inman ship. The best day's run of the *Teutonic* was 509 miles. Homeward the racing was quite as exciting, the two ships leaving New York within five and twenty minutes of one another on the 17th of September and arriving on the twenty-third. On that occasion the *Teutonic* steamed 2,794 miles in 6 days and 19 minutes, while the *City of New York* steamed 2,773 in 6 days 31 minutes. Small wonder that the public was wildly excited over these contests and took more interest in the Atlantic than it had ever done before.

The other continental companies were encouraged by the success of the Germans to bite into what had been regarded as British monopolies. The Canadian Government was anxious to improve the trading connection between the French element and their mother country and while they were overhauling their mail contracts they entered into negotiations with the Compagnie Générale Transatlantique, who offered to run a weekly service of fast steamers between Havre and Quebec, calling either at Plymouth or Southampton on the way out. They agreed that the ships should be eighteen-knotters and they were prepared to start a weekly service on May 1, 1893; a fortnightly interim service in May, 1892. The Canadian authorities played with the idea for a long time but finally decided against it, having obtained an English offer which they considered better.

The Holland American Line made its first entry into British trade in 1890, when it opened an agency and made special arrangements with the South Eastern Railway Company to carry intending British passengers across by their packets in time to embark in the Holland American ships making their call at Boulogne.

By 1890 the National Line had become almost entirely a cargo company, but they were still trying hard to maintain the remnants of their old position and had the *America* and *Europe* built for them, the former at Dundee and the latter by Palmers of the Tyne. They were practically sisters, with a gross tonnage of round about fifty-two hundred and a deadweight carrying capacity of seven thousand.

The Johnston Line was another company which improved its transatlantic services. It had done so well on its regular service between Baltimore and Liverpool that it opened a new service in 1890, making Baltimore its American terminal in the same way but running the ships to London. Their principal interests there were cattle and freight and the company had advantage over Liverpool in that it could draw a lot of cargo from the Continental, particularly the Black Sea, connection which the company already possessed.

Eighteen ninety was a particularly bad year for accidents on the North Atlantic, but the most extraordinary of them all, although happily not the most serious, occurred to the *City of Paris* on the

26th of March, when bound eastward some two hundred miles west of the Fastnet. She and her sister had been built with long external shafts supported only by "A" brackets, destroyer fashion, and the lignum-vitæ bearing had worn, allowing the starboard shaft a certain amount of "whip" which resulted in its breaking. The starboard engine promptly wrecked itself by racing and in doing so broke the injection and water-pipe connections with the sea. When she was built special precautions had been taken by the placing of a longitudinal bulkhead between the two engine rooms, but flying fragments of the cylinder pierced it and in a very short time both rooms were flooded and her steam pumps were out of action. Next day the chief officer was sent in a boat to get assistance and luckily found the White Star *Adriatic* which with the steamer *Ohio* stood by until the tramp steamer *Aldersgate* arrived and took the unfortunate ship into tow, reaching Queenstown in the early morning of the thirtieth with twenty-five feet of water in the engine room.

In the subsequent salvage proceedings the *Aldersgate* and the *Ohio,* which had helped her, received seventy-five hundred pounds and six hundred pounds respectively.

Just before the beginning of the year the National Line had lost their steamer *Erin,* the first of their ships to founder at sea. She had been built in 1864 by Palmers, and when she was built she was one of the strongest ships on the North Atlantic, her transverse strength being thirty-three per cent. above Lloyd's requirements, her bulkheads being twenty-five per cent. and her longitudinal strength ten per cent. above the standard. In 1877 she had been lengthened forty-five feet, but this was not considered to have impaired her strength in any way.

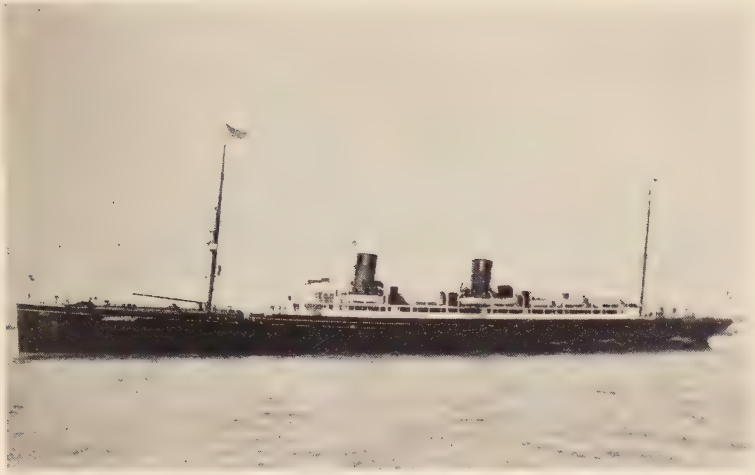
As over seventy men went down with her, the Court of Enquiry naturally attracted a good deal of attention and a rather extraordinary fact was brought forward — that when she was taken off the passenger service and put on to the cargo and cattle run, her Plimsoll Line was moved from twenty-six feet above the keel to twenty-six feet six inches, later being again moved, first to twenty-seven feet and then to twenty-eight feet. The managers of the company declared that they did this to avoid trouble with the crew such as they had experienced with other ships being transferred from the passenger to the cargo service, but they did it without any careful calculation as to just where the load line should be and apparently they considered that they had quite a right to do so, although the Court felt bound to express their strong disapproval of such proceedings. As she was reckoned to be worth two hundred thousand pounds, was uninsured, and as the National Line had themselves insured a considerable number of the cattle on board, it was a very heavy loss to the company.

Soon after her loss the same company's *Egypt* was burned in the Atlantic. The fire got a good hold of the cotton and it was soon obvious that the ship was doomed, but the lucky arrival of the German sailing ship *Gustav Oscar* permitted all hands to be taken off in safety, although it was necessary to abandon six hundred forty head of cattle, many of whom broke their halters and, jumping into the sea, threatened to impale the boats with their horns in their terror.

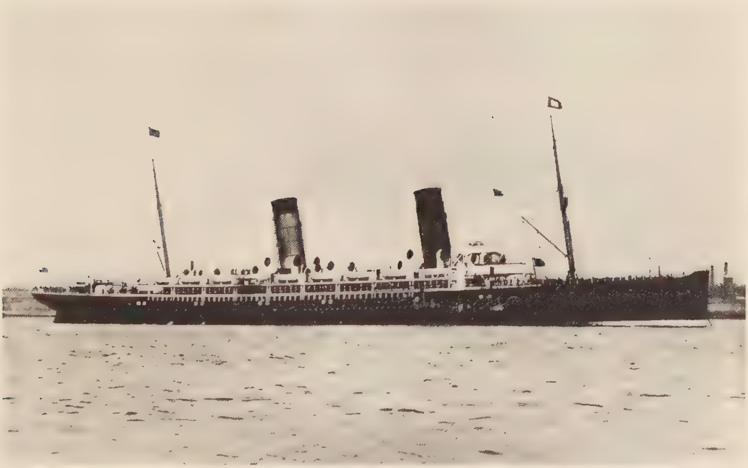
After a few hours of feeding such a big crowd the *Gustav Oscar* found herself with only two days' provisions on board, but the lucky arrival of the Atlantic Transport liner *Manhattan* relieved her of her guests. At that time there was a good deal of discussion concerning the cattle ships on the North Atlantic, and the National Line were coming in for their full share of the blame, so that there were not lacking people who suggested that the accidents to both ships were intentional, losing sight of the fact that the company covered its own insurance and that the two disasters following so rapidly on each other had absorbed practically the whole of their sinking fund.

Very shortly afterwards the White Star Line strictly forbade the carrying of cotton in its passenger ships on account of the fire risk.

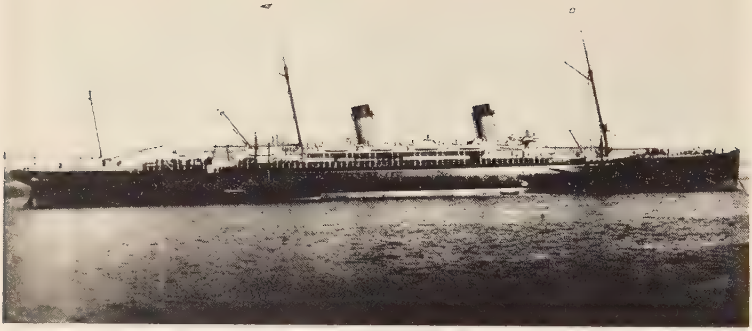
In June there was excitement over the stranding of the *City of Rome* on the Fastnet Rock in a fog, excitement that was increased by suggestions in the Press and elsewhere that she was racing the Cunard *Aurania.* The Court of Enquiry thoroughly investigated the matter and it would appear that she had very bad luck with sound zones, those inexplicable regions of silence which are always liable to render a fog signal inaudible, even an explosive fog signal such as was used by the Fastnet Lighthouse. The finding was that Captain Young was guilty of minor errors of judgment only, and



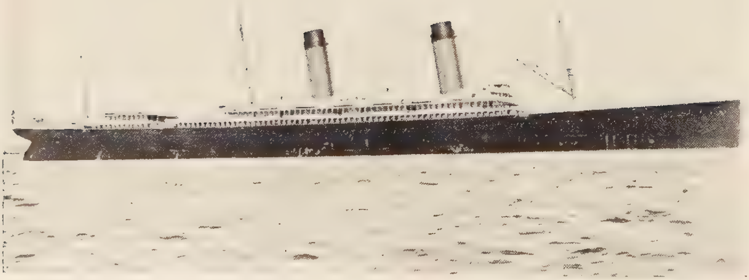
*La Touraine,* 1890 Development of the Compagnie Générale Transatlantique Design



The Cunard *Lucania,* The Model of the Early Nineties



The White Star Record Breaker, *Majestic,* of 1899, a Typical Harland and Wolff Design of the Period



The White Star *Oceanic* of 1899, with Which the Company Ceased Seeking the Blue Ribbon and Adopted a Policy of Solid Comfort Instead that otherwise his conduct and navigation was everything that could be desired, wherefore they did not propose to deal with his certificate. The allegation of racing was flatly denied.

Her broken stem was repaired and soon afterwards she stranded on Hook Spit for six hours without sustaining any injury.

At the end of November, the Johnston *Thanemore* left Baltimore for London with general cargo and cattle and was never heard of again. A terrific storm was raging off the coast at that time, and the Atlantic Transport liner *Maryland,* which left on the same day, was struck by a heavy sea which went right over her bridge and killed the captain and boatswain and seriously injured the first mate and others. Altogether the year was a very unhappy one for the underwriters.

The Hamburg American Line could say as much as the Lloyd and more, in 1891, when the first German-built unit of the *Columbia* class came out, the *Furst Bismarck.* On her maiden voyage the westward passage was the fastest ever made from Southampton, 6 days 14 hours 7 minutes, over a course of 3,086 miles, while her average speed of 19.78 knots on the eastward run was a definite record for the Channel route.

The rivalry between the two German concerns resulted in fierce fare cutting, the Lloyd Line starting by reducing the second-class fare between Bremen and Baltimore by one pound, to which the other promptly replied by a reduction of thirty shillings. The next step by the Lloyds was to lend every steerage passenger an enameled dinner service, a spoon and a fork, and to present him or her with a blanket which might be taken away at the end of the voyage. Until then all third-class passengers had been expected to provide all their own gear.

After a few weeks of cutthroat competition the two companies agreed to restore their steerage fare across the Atlantic to the old level of one hundred marks — five pounds.

While it lasted, the Lloyd Line was perhaps in the better position to stand this war, for few people realized the progress that it had been making until a table was officially published in 1891 showing the number of passengers carried to New York during the preceding ten years. The North German Lloyd Company headed the list with 738,668, followed by the Hamburg American with 525,900.

The busiest British company was the White Star Line but it had only carried 371,193 and was followed by the Cunard with 333,900, the Inman with 322,930, and the Guion with 237,836.

The Hamburg American saw that the advent of their express steamers, and the reputation for speed that was being built up by their regular performances, would be of the greatest value to them in the emigrant business, on which they still relied very largely for their profits, and there is no doubt that they had huge interest. At the same time, it was a great expense having the ships laid up all the winter and all sorts of suggestions were made to cut this loss. A curtailed service was planned, but the state of the harbor of Hamburg prevented that and so little satisfaction did they get when they demanded its improvement from the Government that they threatened to remove their express steamers to Nordenham.

Even then they got no satisfaction, so that it was decided to make the rather daring experiment of sending the *Augusta Victoria* on a pleasure cruise in the winter, or as it was then called, an excursion. The idea of utilizing liners for this purpose was not new, having been started as a regular thing in the late seventies, but the idea of utilizing a first-class Atlantic record breaker was quite novel and no company would have dared to do it before.

The suggestion did not go through without a good deal of opposition from the Board, who pointed out that the German public was not a sea-loving one, that it regarded an ocean voyage as an unpleasant necessity in search of profit and certainly would not go out of its way to enjoy a sea holiday. As usual, Ballin hammered at his point until he got his way and showed his faith in the idea by taking his wife on the first cruise. This started from Hamburg and called at Southampton on its way to Gibraltar, Genoa, Alexandria (sending its passengers to Cairo), Jaffa (for Jerusalem), Beirut (for Damascus), Constantinople, Athens, Malta, Naples and Lisbon. The tour was a triumphant success and there was no opposition from the Board in the following year, after which the practice became general.

The German Hansa Line had been running a service to New Orleans for many years, but when the Hamburg American Line announced its intention of going into the same trade they did not feel strong enough to resist the new competition and agreed to work in partnership. At the same time the directors of the Hansa Company suggested that, as the Hamburg American success made such a difference to the trade to the United States, they might consider the purchase of the Hansa Boston and Montreal services and the fleet which maintained them. Although scarcely justified by their financial position, the Board was agreeable, the purchase price was fixed at five million marks, and the nine steamers which changed hands brought the Hamburg American total up to fifty-four transatlantic steamers totaling one hundred sixty-five thousand five hundred tons gross, at that day considered a colossal figure. At the same time the Hapag improved its West Indian and Mexican routes.

But in another field the Lloyd Line was triumphant and Herr Lohmann pulled off one of the soundest and most important moves in his whole interesting career — the establishment of a new service between New York and the Mediterranean. The Imperial mail service to Australia and the East passed through the Mediterranean and had given the company a good knowledge of the working conditions there. The United States was very short of manual labor and the Italians were flocking across the Atlantic to find their opportunity. Italian tonnage was not very imposing at that time and the British lines had not yet seen their opportunity. Lohmann decided to take the *Werra* and *Fulda* off the New York run and put them into the new service, ships having a fine reputation on the main line, excellent accommodation for emigrants, and first-class quarters sufficient to attract the American tourists who were then discovering the charm of Italy.

The Compagnie Générale Transatlantique improved on its ships of the *La Bretagne* type with *La Touraine* of 1891 which was the first twin-screw ship on the French transatlantic service. With the lines of a yacht she had a gross tonnage of 8,863 and her three-cylinder triple-expansion engines indicated 1,360 horse power. Her best passage from Havre to Sandy Hook was seven days three hours five minutes, the average speed being equal to a passage of six days four hours thirty-five minutes between Sandy Hook and Queenstown. Although she was not a record breaker as compared with the British ships, *La Touraine* was a remarkably consistent performer and a great favorite.

In the eighties the slogan "Twenty knots to Canada" had caused trouble enough, but it cropped up again in 1891 when the Dominion Government was recasting its mail contracts. The Allan Line was willing to consider it if the Government were willing to pay two hundred sixty thousand pounds per annum as subsidy, but they preferred a sixteen-knot service for a smaller sum. Mr. Christopher Furness saw his opportunity and offered to maintain a twenty-knot schedule for two hundred thousand pounds per annum, but he insisted that the Government should also guarantee a four per cent. return on a capital of a million and a quarter. That they would not agree to and the matter was held up until two years later, when Napier's, the well-known Clydeside shipbuilders, offered to found a company to run an eighteen-knot service for a subsidy of one hundred fifty thousand pounds. While the negotiations were in progress, however, they found a number of difficulties and finally backed out. Next year another scheme was put forward and fell through — that of Mr. James Huddart, the Australian shipowner, who was willing to run a twenty-knot schedule as part of his All-Red Route scheme in return for a subsidy of one hundred fifty thousand pounds. But he also demanded guarantees which were the rock on which the negotiations split.

But at the same time it was realized that a better speed was of importance to Canada, even on the steerage and cattle business, and in this the Dominion *Labrador,* which was built by Harland and Wolff, was a considerable advance. With a gross tonnage of 4,737, she could manage her 15 knots and established a new record of 6 days 8 hours from Moville to Rimouski. The cattle fittings were particularly good, reducing the mortality on the voyage, while in the steerage they tried a new system of canvas beds on wooden frames which folded away by day and at the same time they fitted a very elaborate ventilation system which added greatly to the comfort of the third-class passengers.

The Allan Line took due note of her performance and took steps to counter it, but in the meantime it developed in quite a new direction. The directors of the State Steamship Company had decided in February that they could not carry on any longer and accordingly sent out a circular to their shareholders. At that time they were in debt to the extent of sixty-one thousand pounds and wanted a further sum for working capital, which the shareholders were far too tired of the whole business to provide.

Eventually the Allan Line purchased the fleet and goodwill of the company and announced that it would maintain the service between Glasgow and New York, supplementing the best steamers of the old company by ships from its Canadian fleet. The older ships of the State Line, some of which were long past economical work, were to be sold off. The price paid for the concern was only seventy-two thousand pounds so that after paying off the debts there was little left for the shareholders.

The business wanted a good deal of working up, and the fleet was of a very varied quality. The *State of California,* which was still under construction by Stephen of Linthouse, was certainly an excellent ship with a speed of fifteen knots and gave the purchasers excellent service, both under her original name and as the *Californian.* The *State of Alabama* dated from 1873 and was promptly resold to a Glasgow firm, being finally broken up in 1896. The *State of Nevada* was only one year younger and remained in the Allan Fleet for two years. The *State of Georgia,* although dating from 1873, had been reboilered and modernized but she was of no use to her purchasers, who resold her at once, to go missing with all hands five years later. The *State of Indiana, State of Pennsylvania* and *State of Nevada* remained in Allan ownership for two years but they were very little used and were reported to be on sale to scrappers at thirty shillings a ton or less. Then in 1893 they were sold for seven thousand pounds apiece — three pounds a ton — to the Turkish Navy, who utilized them for transports for many years afterwards under the names of *Isnir, Medina* and *Mecca.* The *State of Nebraska* was much more useful and remained in the fleet until she was broken up in 1902.

The most serious casualty of 1891 was the sinking of the Warren Liner *Iowa,* while carrying cattle from Boston to Liverpool. Some distance east of Cape Race she ran into an enormous ice field, but as it appeared to be very thin Captain Owens thought that he could easily steam through it. She had reached clear water when it was noticed that she was going down by the head and in spite of all efforts the water gained on the pumps. Had it not been for the arrival of the tank steamer *Chester,* which took off all hands at the last minute, the death roll might have been heavy.

In the summer the Cunard *Servia* had the misfortune to break her high pressure crank pin on the eastward voyage, fracturing the shaft. For a time she was towed by a Dutch steamer, but finally four tugs met her and helped her into New York, where she was laid up while a new crank shaft was sent from England.

There was one development during the year that is worthy of more than passing notice, and that was the agreement between the Cunard Line, White Star, Inman, Guion and National lines, which stipulated that Atlantic liners should keep to definite trade lanes. This agreement came into operation in November and although it was frequently broken there is no doubt that it attained excellent results and materially helped in the owners' securing a really safe Atlantic passage.

The White Star Line started a new class of big cargo and cattle carriers in 1891 when they launched the *Nomadic* and *Tauric* as improved *Runics*. Twin-screw ships of about 5,750 tons, their cattle-carrying facilities, which were at that time the subject of great public discussion, were acknowledged to be the finest that had been put on the North Atlantic.

The control of immigration into New York, which had been established in 1890, paved the way to a measure of restriction two years later. The door was still very wide, but the United States was now in a position in which it could at least select the quality of its settlers and make sure that its selection was respected. And it was not long before Federal powers in this direction were tried to the utmost.

In 1892 the Continental companies decided that the cut-throat competition which had been damaging them all should stop, and a pool generally known as the Nordatlantischer Dampfer Linien Verband, or more briefly the N.D.L.V., was formed between the Hamburg American, North German Lloyd, Red Star and Holland American lines. There had been shipping pools of limited scope before them, but they did not interfere with the efforts of the individual companies to book as many passengers as they could. Percentages of the traffic were allotted to each company, the Dutch and Belgian lines being treated quite fairly, and this concession proved of great value when the British lines attempted to get the support of the Red Star and Holland American in their opposition to the German control system.

The pool was sufficiently strong for the British companies to be glad enough to come to an agreement with it in 1894, by which the Continental companies agreed to retire from the British emigrant traffic altogether and in return the British lines limited their Continental traffic to six per cent. of the total, a quota that was divided among themselves by agreement. There were many points about this that have to be given special attention later.

At the beginning of the year, all the German companies, but particularly the Hamburg American, were preparing for a record year. Everything appeared to be in their favor. Emigrants were coming forward by the thousand from Germany and Eastern Europe, employment was profitable in the States, and the North Atlantic Pool had promised the end of all wasteful competition. Then cholera broke out in Hamburg, and there were eleven hundred five cases in the first three days. Immediately all Continental steerage arrangements were cancelled while the situation was got under control, but in the meantime exaggerated reports of the precautions which the American authorities intended to take had caused the flow of emigration from Eastern Europe to cease entirely.

This was a blow to Hamburg, for huge new emigration halls had just been built, but the fact that 16,956 cases and 8,605 deaths occurred in two months, showed how terribly serious the matter was and how fully justified the American authorities were in taking all precautions. The companies fully appreciated this and for the time being worked hard with no other idea than to stamp out the scourge.

Emigration from Hamburg was renewed in February, 1893, but another outbreak in the late summer caused the service to be temporarily removed to the naval harbor of Wilhelmshaven. Then cholera was completely stamped out, but the damage was done and for a considerable time Hamburg was boycotted by American travelers. It was a colossal loss, and to make matters worse, emigration was cut down by the economic crisis in the United States and the Great Exhibition at Chicago reduced the number of American visitors. So the Hapag company turned its attention to Scandinavian emigration again, first as a feeder to the Hamburg services, but in May, 1893, by a revival of the service between Stettin, Gothenburg and New York in competition with the British, the service being maintained by five ships sailing as the Scandia Line.

These blows to the company's prosperity caused the directors to bring about many reforms. The primary North Atlantic services were completely reorganized with the idea of increasing the cargo business and attracting more emigrants, a branch which had been rather neglected in the development of the express steamers.

The company also decided on an entirely new type of ship, an economical steamer with fair speed, good cargo capacity, large accommodation for emigrants and cabins for a few passengers. The first of these ships, which were to develop in the famous "P" type, were ordered in 1893, *Prussia, Persia, Patria, Phoenicia* and *Palatia*, the orders being divided between German yards and Messrs. Harland and Wolff of Belfast.

One result of the cholera scare was that several German ships finished their voyage at Southampton instead of proceeding to Hamburg into the danger area. Needless to say, this direct service between Britain and the United States under a foreign flag caused a good deal of rather bitter comment among their British competitors. In spite of the precaution the *Normannia* had an outbreak on board and spent three weeks' quarantine in New York. Among other results was that the German liners advertised that in future they were carrying two doctors instead of one and that the Compagnie Générale Transatlantique temporarily transferred its terminal from Havre to Cherbourg. In spite of the fact that there was no cholera in Britain, British ships were subject to the full American quarantine precautions and to prevent valuable tonnage being held up, the Cunard Line decided to land the third-class passengers from their mail steamers, running a special ship periodically to carry the emigrants who were liable to the American precautions. The old *Indiana* was chartered by the Inman Line for a similar purpose and one or two ships brought out of the reserve when long past their day on the Atlantic.

The success of the Hamburg American express steamer *Augusta Victoria* on a Mediterranean yachting cruise in the winter of 1891 pointed to an excellent solution to the problem of laid-up ships during the winter, but the market was still limited and she was only one ship out of four. So in the winter of 1892 it was decided to start a service between Genoa and Naples and New York, taking advantage of the waves of Italian emigration which were then commencing to make themselves felt. On this seasonal run the express ships more than paid their expenses and did so well that in the following winter the North German Lloyd and the Hamburg American decided to work in agreement.

At the same time the pleasure cruise program was extended, the Hapag sending two ships out to the Far East and in 1894 breaking fresh ground by sending the *Augusta Victoria* for a cruise to the North Cape.

Although they were not as much in the limelight as their rivals, the North German Lloyd directors were not idle, and established a subsidiary company known as the Roland Line to run a steerage and cargo service fortnightly between Bremen and New York. Cargo was at the moment the only business which seemed to hold out any prospects at all. They wanted to run it on an altogether cheaper basis than their own services, keeping the management quite distinct, and they found that there was a demand for accommodation at the lowest possible rate. The *Roland* of 3,600 tons was purchased and the twin-screw *Wittekind* and *Willehad,* sister ships of 4,500 tons with accommodation for 2,400 steerage passengers. were built by Blohm and Voss of Hamburg. Naturally enough their accommodation was rough but it was good value for the money charged and the service was excellently run and organized.

In 1892 the Atlantic Transport Line seriously started a passenger service between London and New York in opposition to the National Company. Two years previously they had built two steamers, *Michigan* and *Mississippi,* but they had been purchased by the National Line which was already on the down grade and making a desperate attempt to regain its position. *Manitoba* and *Massachusetts* were built for them by Harland and Wolff, *Mohawk* and *Mobile* were purchased from the Elder Dempster Line, and the Hamburg American steamer *Persia* became the *Minnewaska,* a ten-day service between London and New York being established.

The company had already built up a big business in the transport of horses and cattle, as well as cargo, and they had no intention of giving up the profits of those. But they foresaw that there would be a good demand for first-class accommodation which provided solid comfort rather than speed. In this they proved to be perfectly correct and have stuck to the policy ever since.

For a long time there had been very considerable feeling in the United States over the Inman Line, for it was essentially an American company, the majority of the shareholders being American. Yet it ran under the Red Ensign in order to save running costs. It was desired to alter this, but there were numerous legal difficulties to be overcome, particularly the American law which withheld American registry from any but American-built ships, unless they had previously been so badly damaged that they had been practically rebuilt at an American yard. However, it was understood that everything would be made all right for the company and accordingly in October, 1892, the United States Post-office entered into an agreement with the Inman Line which really acknowledged it as an American concern. The directors agreed to carry the American mails for a subsidy of four dollars per steaming mile, which amounted to about fifteen thousand pounds per annum. As the two crack ships in the company, the *City of New York* and *City of Paris,* had found very considerable difficulty in crossing the Mersey Bar the United States Post-office granted them special permission to transfer the mail port from Liverpool to Southampton, a great triumph for the Hampshire port on the Western Ocean.

Naturally the transfer to the Channel port aroused very bitter feelings, especially as Southampton interests had every intention of letting the world know of their triumph. Lancashire did everything possible to maintain the position of the Mersey and many improvements were effected which might very well have been tried before.

Just before the change the company lost the *City of Chicago,* which had been a very useful, although not a pretentious ship. Coming up Channel in a summer fog she stranded and just when prospects looked bright for her salvage she swung broadside on to the land and broke her back. Eventually what was left of her fetched four hundred twenty pounds, while the Board of Trade inquiry decided that Captain Redford was traveling far too fast in the fog and was not using his lead sufficiently, suspending his certificate for nine months.

Another change was the retirement of Mr. Thomas H. Ismay from the helm of the White Star Line in 1892, after he had watched the progress made by his two sons as partners for twelve months. Although he was still in the early fifties he felt he had done his work and he had indeed been a colossal worker. Until his death, however, he retained his financial interest in the firm and he was still a very considerable power behind the scenes and a real autocrat in spite of the kindly nature which was shown in numerous charities.

The most discussed disaster of the year was the wreck of the North German Lloyd liner *Eider* in January. She was homeward bound from New York when she was wrecked on the Isle of Wight in a dense fog. There were nearly four hundred people on board at the time and to begin with the ship appeared to be in the greatest danger, but the lifeboats succeeded in getting every soul off in safety and then got the specie and mails away. Many weeks afterwards the ship herself was salved to Southampton in a badly damaged condition, but was not considered to be worth repair. Then there were two broken shafts which caused a lot of feeling against the single-screw liner, first the North German Lloyd *Spree* which resulted in the Beaver Line steamer *Lake Huron* drawing twenty-four thousand pounds in salvage, and secondly the Cunard *Umbria*.

It is probable that many of these single-screw ships would have been relegated to other trades had not a means been discovered to improve their economy greatly. About this time a very large number, one might almost say the majority, of the older Atlantic liners which had originally been fitted with compound engines had them converted into triple-expansion, or tripled, as it was called. It was not by any means a difficult job and the cost was soon balanced by the increased economy of the ships, the reduced coal consumption also permitting a reduction of bunker space in many ships and a consequent increase in carrying capacity.

The Inman Line had been treated as an American concern in the mail arrangements of 1892; it became one in every particular in the following year. The British Government agreed to cancel the arrangement whereby the ships were to serve as auxiliary cruisers in war time. By special act of Congress the two big ships of the company were granted American registry in spite of being British built, but the older ships remained under the Red Ensign. The words "City of" were dropped out of all the names, the old "I and I" house flag gave way to the blue eagle on a white ground, and only in the white-banded funnel was the identity of the Inman Line preserved.

The ceremony of transferring the *Paris* and *New York* to the American flag was made a great national occasion, the President of the United States and his Cabinet being present. The United States Ship *Chicago* was anchored near by and as the Stars and Stripes were broken out fired a full salute which was taken up by the guns of Castle William and the Brooklyn Navy Yard.

With their pride in the ships that they had just acquired it is only natural that the Americans would want to see them one hundred per cent. American, particularly in the matter of the senior officers. Captain Frederick Watkins, the Inman commodore, was taken out of the *Paris* and relegated to the old *Berlin* until he should have had his "intention papers" of American citizenship for two years, when he was reinstated. Captain John Clark Jamieson was appointed to the *New York* and very fully justified the appointment, for he was one of the finest sailormen in the country. Born in 1847, he first took to the water in a New York pilot steamer, a hard school but one which teaches a wonderful lesson. In this he learned to be a sailor before he was sixteen and then served before the mast for a spell in the famous clipper packet *Dreadnought*. The Pacific held him for twelve years, then he spent some time in the United States Navy, and finally, in 1876, settled down as an officer in the Red Star and American lines.

The Guion Line was not so lucky as its old rival the Inman in finding American capital to help it over its difficulties, and these difficulties were very great indeed. First, the *Wisconsin* went for scrap, leaving the company with the *Alaska, Arrona* and *Nevada* running, and the *Wyoming* in reserve. The last-named was sold to give her owners a little cash to carry on with and finally the *Nevada* hauled down the Guion Line flag at the end of her two hundred fifth voyage in May and was soon afterwards offered for sale by auction, but withdrawn. Within a week or two she had been sold for four thousand pounds, and it transpired that her buyers were Flinn, Maine and Montgomery, who renamed her *Hamilton* and ran her on the Dominion Line service as long as they were concerned with its management. She then, in 1896, went to Italy.

The National Line was also going downhill rapidly, and at last disposed of some of its long-obsolete ships. The *Canada, Italy* and *Helvetia* went, the last-named foundering on her way out to her purchasers.

In these somewhat discouraging circumstances, the Cunard directors had the courage to take a very definite step and brought out the *Lucania* and *Campania* which were a great advance on anything that had preceded them. They had been bitterly criticized for not making an immediate reply to the White Star and Inman ships of 1888 and 1889 — they preferred to wait and see just what they were up against, and they were right. In every way they marked a very great improvement on previous tonnage which had been built either for the line or by the Fairfield Yard. They were steel twin-screw ships, their dimensions being 601 by 65.2 by 37.8 feet depth of hold, which gave them a gross tonnage of 12,950. Their hulls were particularly strongly built to satisfy the requirements both of the company and the Admiralty, and they were fitted with sixteen water-tight bulkheads, a cellular double bottom extending the whole length of the ship, and every possible safety device.

Each screw was driven by a five-cylinder triple-expansion engine, the passenger accommodation was the very last word in comfort and size, and externally with their yachtlike lines and two big funnels they were all that liners should be, and showed that a clipper stern was not absolutely necessary to obtain beauty at sea.

Just as the *Umbria* and *Etruria* were constant rivals for the Blue Ribbon, so were the *Campania* and *Lucania*. It would be difficult to say which was the better or the more popular ship of the two, and they were constantly vying with each other for the actual possession of the record, which between them they held for four years.

The *Campania* gave promise of being a flyer from the very start. Her maiden passage of 6 days 9 hours 10 minutes over a course of 2,869 miles was the best maiden trip up to that day and homeward she averaged no less than 22.4 knots on her best day's run and created a new record for the short leg from Queenstown to Liverpool. Shaking down, she tackled the *City of New York's* eastward record, logged in 1892, which averaged 20.10. The new ship could do better than that and averaged 20.94, but before the winter was out she had crossed at 21.3.

Experience with the *Campania* permitted the Fairfield yard to carry out certain alterations in the after part of the *Lucania* before she went on service. Their purpose was to minimize vibration, and they were so successful that the *Campania* was similarly treated with very little trouble. The filling in of the two well decks contributed to the same result and greatly strengthened the ships.

The result of these changes was that the *Campania* was not allowed to keep her distinction very long, the *Lucania's* maiden effort setting a record, 5 days 15 hours 37 minutes for a 2,781-mile course to Fire Island, her total time being 6 days 4 hours 10 minutes from Liverpool to New York. Homeward she averaged 20.4 knots. On her second voyage she averaged 20.75 knots westward against the 20.7 of the *City of Paris* and 21.01 eastward, after which she steadily improved and soon walked right away from the clipper-stemmers.

When the new ships were ready for sea they were automatically substituted for the *Umbria* and *Etruria* on the Admiralty subsidized cruiser list, and as they had been designed according to Admiralty requirements from the very first it was a very desirable change. All their vitals were under water while their twin screws gave them an added value and for their day they were undoubtedly the ideal auxiliary cruisers.

The subsequent history of the two ships is mostly contained in their steadily increasing speed, for apart from that they were so well-behaved that they are perhaps a little dull to the historian, although eminently satisfactory to Cunard shareholders.

Each of them had a remarkable circle of regular passengers who traveled voyage after voyage, and the fact that they were well pleased with them is shown by the action of one of the regular passengers in the *Lucania,* a wealthy American widow who, when she died, left practically the whole of her fortune to be divided among the officers with an extra ten thousand pounds for the captain.

The greatest interest in the after history of the *Campania* occurred during the War, and is dealt with in the War chapter, but unfortunately the *Lucania* did not survive so long. When the *Lusitania* came out in 1907 the old *Lucania* was employed pacing her and showed that she was still possessed of a really remarkable turn of speed. Two years later, while in dock at Liverpool, a fire broke out on board which soon gained such a hold that she was gutted before the flames could be overcome. There was talk of reconstructing her with turbine engines, but, after she had been thoroughly surveyed and the matter had been fully discussed, it was decided that the enormous increase in the tonnage of first-class liners since she had been built made it more than doubtful whether the expense would be justified and accordingly she was sold to the ship breakers.

But in spite of the fact that she was so terribly damaged her engines were still in sufficiently good condition to carry her round to the scrappers' yard at a speed of seventeen knots.

The *Campania* and *Lucania* ended the remarkable series of Atlantic liners built at Fairfield, which began with the *Arizona* of 1879. It was one of the most exciting and interesting periods in the history of the North Atlantic, and it has to be admitted that the Fairfield yard made history in that period to a remarkable extent. The steady development in size, speed, economy and luxury is most interesting to observe, and the name of Sir William Pearce is one that deserves to be remembered by everybody interested in the Western Ocean.

The White Star Line was not yet in a position to build anything against these Cunarders, but it continued the construction of the first-class cargo class, easily convertible into emigrant carriers, with the *Cevic*, 8,315 tons, 13 knots which with her special fittings was soon a favorite for the carriage of prize cattle and horses. The line was unlucky in losing the *Naronic*, a new ship of very much the same type, which disappeared without a trace during the succession of terrific gales which marred the spring.

The twin screw *Southwark* was added to the American Line's British flag fleet in 1893 by Denny of Dumbarton, a famous builder with a surprisingly small connection on the North Atlantic. She was a ship of 8,607 tons with quadruple-expansion engines of 7,000 indicated horse-power and a speed of 16 knots. She was primarily an emigrant carrier, her passenger accommodation being eighty first- and a thousand third-class passengers.

The reconstruction of the Allan liner *Polynesian* by Workman Clark of Belfast in 1893 showed the tendency of the companies who could not afford to build at this time. She had made a great impression when first she came out, but she was, of course, hopelessly out-of-date when compared with her modern rivals. To begin with, she was cut down a deck, but a deckhouse one hundred feet long was added. Her first-class accommodation was cut down to twenty-eight passengers amidships, but in the space formerly occupied by the old-fashioned saloon aft there were quarters for a thousand emigrants. New boilers and triple-expansion engines gave her a speed that was better than her original by a knot and a half on a far smaller consumption, so that in place of the bunkers which were no longer necessary nearly a thousand tons of extra cargo could be carried. At the same time she was thoroughly reconditioned externally and renamed *Laurentian*. The Dominion *Vancouver* was another Canadian liner that was reëngined and modernized at the same time.

Frederick Leyland was undoubtedly one of the most brilliant men in Atlantic shipping and when he died in 1893 his twenty-year control had made a wonderful concern of the line which bore his name and which by then had a splendid reputation on the Boston run. When he was gone it was decided to convert the firm into a limited liability company, under the control of Mr. Walter Glynn and Sir Christopher Furness, with a capital of six hundred thousand pounds and to carry on in the principles that he had laid down.

But the new limited company, distinguished as was to be its career, and noteworthy as were the men who controlled it, sadly missed the personality of old Mr. Frederick Leyland, who was one of the most remarkable of men. Primarily he was a shipowner and he introduced into shipowning modern methods which were laughed at at the time, but which gave him a big pull. On his desk he had a card file — then something of a novelty — brought up to date every morning, which showed him the exact position of every ship and the space that he had to offer. Rival shipowners made fun of that sort of thing, but his extraordinary knowledge of his business paid, particularly if he happened to get landed in the courts.

He had started work in Bibby's office immediately after he left school and he always felt the lack of any finish to his education. So, in spite of the fact that he was working colossally hard at his business, he set about rectifying the omission. He taught himself to speak French and Italian when he was past middle age, not so much for the business advantage but to enjoy the literature of both countries and to be able to learn more about their art. He was no mean authority on art and at his death, which occurred with tragic suddenness in a London train, his Turners and Vandykes fetched about two hundred thousand pounds. Whistler, the artist, owed a great deal of his success to the help that Leyland gave him. Perhaps the most extraordinary note in this complex character was the fact that, when he was a successful shipowner and a holy terror in many ways connected with his business, he considered it worth his while to engage a well-known musician specially to teach him to play the piano.

On the Continent matters were comparatively quiet except that the French Subsidy Law of 1881 was altered, for it had been a palpable failure. It paid a generous bounty for every ship built in France and in addition another for every thousand miles steamed by a French ship, foreign-built ships under the French flag receiving half the rate. Its idea had been to encourage French shipbuilding, but, if such a course could possibly be avoided, it was only such lines as the Compagnie Générale Transatlantique who were under the influence of the Government on account of their mail subsidy, who favored French yards.

The truth was that the French shipbuilders had taken advantage of the 1881 subsidy to put up their prices immediately it was passed and, quite apart from the irritation of this, most owners found it paid them better to get their tonnage abroad and to be content with half the navigation bounty. In the 1893 law this half bounty was dropped and additional financial inducements were held out to encourage the construction of first-class steel ships. Once again the price went up with the inducement, and the Act was a failure, except that it encouraged the construction of big sailing ships which found that they could pay quite comfortably on long voyages without a single ton of cargo.

The North German Lloyd service between New York and Genoa had shown so much promise during the first three years of its existence that at the beginning of 1893 it was extended to cover Naples and Alexandria, while a new service was started from Naples straight to New York. The arrangement with the Hamburg

American Line to work the Mediterranean services jointly, while it required a good deal of fixing, resulted in a big improvement in the service and reduction in cost.

The possibilities of Newport News as an Atlantic terminal were explored by the Chesapeake and Ohio Steamship Company, a concern which was owned principally by the Chesapeake and Ohio Railway but which had its head offices in London and ran its steamers under the British flag in order to reduce running expenses. They were chiefly interested in the cattle and cargo trade, and as regards the former they were immediately noticed as the best fitted ships on the Western Ocean, but they also had accommodation for a limited number of first-class passengers whose business took them to the South and who preferred this method of travel to the New York cracks followed by train. The fleet started with the *Rappahannock* and *Shenandoah,* ships of about four thousand tons gross driven by triple-expansion engines. Messrs. Furness, Withy and Company acted as agents for the new concern in Britain and eventually took it over entirely.

The end of the cholera trouble naturally made the German lines take every possible step to recover their position, and the British companies were equally keen on getting them at a disadvantage. Matters became worse when the depression in the United States cut down immigration to a minimum and every passenger had to be fought for. So a rate war started. Steerage passages were reduced to two pounds ten shillings from London and three pounds from other ports in Great Britain, but the White Star Line was willing to go better than this and cut the fare to two pounds, including the railway journey to Liverpool. The Cunard Line followed suit and the companies using Southampton reduced their fare to one pound sixteen shillings, an absurdly low level which could not possibly last if the ships were to continue running. To put an end to it the British lines finally came to terms with the German pool by which the Continental lines cut out their British emigrant business altogether, and the British contented themselves with six per cent. of the Continental trade, splitting this quota up by national agreement.

But apart from the rate war there was in this keen rivalry some good features. The White Star Line decided that low fares were not the only means of attracting passengers and announced that, in future, *everything* would be found by the company for the convenience of the emigrant. This was a real boon, ending what was really a scandal, and the example was soon followed by the Allan, Beaver, Dominion, American and other concerns.

The adherence of the British lines to the pool would have been a blessing to everybody concerned had it been maintained in the spirit in which it was signed. But as soon as peace was declared a practice was started which caused bitter feeling right down to the outbreak of the World War. The Germans were thoroughly alarmed at the possibility of a repetition of the outbreak of cholera which had ruined their emigration business for the time being, and in 1894 a series of control stations were established by the German Government. Their ostensible purpose was to prevent cholera being brought into Germany from Russia again but, if it was not in their mind at the beginning, it soon became evident that this system could be used as a very powerful aid to the German companies. The erection and management of the control stations was vested in the Hamburg American and North German Lloyd companies, who incidentally had to bear the whole cost, so that it is not altogether surprising that they tried to recover some of the expenditure by increased business. The British lines, taking emigrants from Eastern Europe under the pooling agreement, found themselves very severely handicapped. Transhipment in the United Kingdom became a very expensive matter and many emigrants from Eastern Europe found themselves traveling by German steamers, to their own surprise.

Complaints were made that passengers who had booked by British lines were put to so much inconvenience and expense in the German control stations, sometimes even coupled with threats to send them back to their own country after they had sold all their possessions there, that they were frequently persuaded to transfer their custom from the British to the German companies, the British lines generally refunding the passage money already received.

Altogether it was a difficult year for everybody, and a disastrous one for many well-known concerns.

In spite of the popularity of the *Alaska* and the *Arizona* the Guion Line's financial troubles were becoming more and more acute, and in 1894 these two fine ships were withdrawn from the service and offered for sale. The constant succession of broken shafts on the Atlantic had made owners nervous of single-screw passenger ships, and, failing the find of a purchaser, they were laid up in the Gareloch on the Clyde. There they remained for two years with every effort being made to dispose of them, and at the end of that time the *Alaska* was chartered to the Spanish Compania Trasatlantica to act as a transport in the suppression of the Cuban rebellion under the name of *Magallanes,* while the *Arizona* was taken in hand by her builders, given new machinery, and converted for a transpacific service in which they were interested, from whence she was bought by the United States Government at the time of the Spanish-American War to become the transport *Hancock.* At the end of the Great War she was still good for her thirteen knots across the Atlantic and was not finally broken up until 1926, the *Alaska* having gone to the scrappers in 1902 after a spell as a floating barracks for shipyard workers in Barrow-in-Furness.

The Dominion Line had been providing an excellent service to Canada, and some of their later ships were fine emigrant carriers, but they had been terribly unlucky with accidents and their expenses for insurance, etc., were accordingly very high. The Bristol service was abandoned to the Elder Dempster Line, newcomers on the Canadian trade. Messrs. Flinn, Main and Montgomery, who had managed the line since it was founded, abandoned the company in the autumn, and within a few weeks it was announced that the business had been sold to Richard Mills and Company of Liverpool for thirty-six shillings and sixpence per twenty pound share. It seems a reasonable enough price, considering the reputation that the company possessed, but they took over heavy liabilities and a big debenture debt.

The Beaver Line, which had been fighting a game but losing battle against the superior tonnage of the Allan Company, got into hopeless financial difficulties and simultaneous applications were made in the British and Canadian courts for the liquidation of the company. They were adjourned for concerted action and finally Messrs. D. McIver and Company, intimately connected with the founder of the Cunard Line, were put into management for the liquidators. Soon afterwards the English creditors accepted seven shillings and sixpence in the pound and all the interests of the company were handed over to the Canadian debenture holders who were satisfied to keep Messrs. McIver in the management of the firm, but who were to cause a good deal of trouble later on.

The position of the Beaver Line was made more serious by the fact that just as their difficulties were becoming overwhelming the Elder Dempster Line brought in further competition. It was a well-known British line which, having built up the West African trade, decided that it would try its luck on the Western Ocean and accordingly took over the service which the Dominion Line had been running between Bristol and the St. Lawrence with only qualified success. Elder Dempster's found better profits because they immediately put new and far bigger tonnage on the service. To begin with they interested themselves in cargo only, but the Beaver and other companies on the Atlantic run fully expected them to turn to the passenger business before long, and their fears were soon realized.

The sailing of the *Queen* in February was the last national departure from the Mersey; after that the company concentrated all its attention on the London business, but its day was done.

It was scarcely an occasion for putting expensive new ships on service if it could be avoided. The Compagnie Générale Transatlantique was forced by its subsidy agreement and commissioned the new *La Navarre,* at the same time tripling the machinery of *La Normandie* and generally modernizing her. The new ship went on the New York run for a single voyage and averaged fifteen and one half knots, then she and her rejuvenated sister were put on the West Indian service for a spell, with the announcement that they would start on the regular New York schedule in 1895.

The British flag ship *Kensington,* which came out for the American Line, was a sister to the *Southwark* of the previous year in all particulars.

The Hamburg American went to Harland and Wolff of Belfast for the first of what was afterwards to be a gigantic class, all of whose names began with the initial "P." The first two units, built in 1894, were the *Prussia* and *Persia.* With a gross tonnage of six thousand and speed of thirteen knots with five thousand indicated horse power, they were designed to run economically on the intermediate Atlantic service, carrying a few saloon and twenty-five hundred steerage passengers, in addition to a considerable cargo.

The troubles of the single-screw liners were not over, for the *Ems* of the North German Lloyd Line broke her tail shaft and had to be towed into the Azores, causing infinite trouble and inconvenience for her passengers.

The two big American Line steamers which were the force demanded by Congress for permission to transfer the *Paris* and *New York* came out in 1895 as the *St. Louis* and *St. Paul.*

As the first Atlantic liners to be built in the United States since the Collins Line, it is only natural that they attracted great attention, which they well deserved. It was the original intention to build them with long clipper stems and bowsprits, after the fashion of the *New York* and *Paris,* but that idea was abandoned and they came out with straight stems, counter sterns and two widely spaced funnels between two masts. They were built by Cramps of Philadelphia and were rather more than eleven thousand tons gross with accommodation for three hundred twenty first-, two hundred second- and about eight hundred third-class passengers. Following the policy of the Collins Line they were given particularly comfortable, even luxurious accommodation. The saloons were on the spar deck, which made them delightfully light and airy but rather narrow. Their two sets of six-cylinder quadruple-expansion engines worked up to about twenty thousand indicated horse power, giving them a speed of twenty knots and being supplied by six double-ended and four single-ended boilers. As the United States Navy was expanding at that time, but was deplorably short of cruisers, the Navy Department had a good deal of say about their design and they were just as carefully considered as auxiliary cruisers as were the Cunard *Lucanias.*

The *St. Louis* was the first of the two to be completed and under the command of Captain Randle passed Hurst Castle on her maiden voyage on June 13, 1895, after a passage of seven days three hours fifty-two minutes. The *St. Paul* came out later in the year and made about the same time.

It was the Hamburg American Line which first appreciated the possibilities of a call at Cherbourg as an adjunct to the Southampton service and started the practice with their express steamers in July, 1895, at the same time procuring the coöperation of a new express service to Paris. This soon proved a great success without any great increase in their running time and it was followed by a change in their eastward English port of call, for the time being, from Southampton to Plymouth, which saved ten hours on the company's passenger time from New York to London.

The American Line countered the move by coming to an agreement with the London and South Western Railway for special packets to run across the Channel in conjunction with their arrivals at, and departures from, Southampton. It was not until 1899 that they substituted a Cherbourg call in both directions.

All this was cutting into the particular province of the Compagnie Générale Transatlantique and they took certain measures to protect their service from Havre. Perhaps the most interesting was the construction of a special train of their own, each of the carriages being named after one of their big liners.

The directors did not propose to be satisfied with this sort of thing and rightly considered that something striking would have to be done at once. After a lot of discussion it was decided that if the Government would assist with a settled subsidy they would build two big ships with a speed of at least twenty knots, capable of giving to the French flag its old prestige on the Atlantic. The Government thought over the matter for a long time but it was not until the mail contract came up for renewal in 1898 that they took a definite step and made the construction of the new ships a condition, but requiring their designed speed to be twenty-two knots instead of twenty. The ships so built were *La Lorraine* and *La Savoie,* the former taking her maiden trip in August, 1901, and the latter in September, 1902.

Liverpool interests were frankly alarmed at the progress made by the Channel route and set about countering it by the very sensible method of improving its own facilities. The opening of the Prince's floating landing stage, with a new line of railway right down to the water, put an end to all the fuss of embarking and disembarking by tender and saved passengers infinite trouble with their luggage. The work of dredging the bar to permit big ships to pass over it at all states of the tide was hurried forward and this was perhaps the greatest boon of all to the westward traveler. The liners were only officially regulated as to time with regard to the Queenstown call, so that if the tides forced them to cross the Mersey Bar at an early hour it meant that the companies had to inconvenience their passengers to arrive early at Liverpool, only to dawdle about the Irish Sea. The rivalry between the British ports drew particular attention to these operations, but New York was also carrying out big improvements.

The close connection between the American and the Red Star lines permitted the former's acquisition of tonnage to increase the latter's facilities very greatly and to permit an interchange of ships whenever it was convenient. The *Kensington* and *Southwark* under the British flag, after a spell on the Liverpool-Philadelphia route, were transferred to the Antwerp-New York run, while the Red Star liners *Belgenland, Rhynland, Pennland* and *Waesland* took their places on the Liverpool-Philadelphia service. The old *Berlin* was also put on the Antwerp run when it appeared advisable but unfortunately the first experiment in that direction was spoiled by a collision in the Channel which caused her voyage to be abandoned.

During the year 1895 came the first report of a new Atlantic company to be formed, the company which in the next year grew to be the Wilson and Furness-Leyland lines. At first the report was that the name was to be the Leyland, Wilson and Furness Line and before any definite plans were published it offered to buy the National business. Fifteen per cent. of the National shareholders stood out against the suggestion, in spite of the fact that they were doing very badly and the price offered was a good one. Therefore the deal fell through, and the National people had perpetual cause to regret it. Soon afterwards they had to accept the offer made by the Atlantic Transport Line, although it was not so good as that of the new concern, and the management was transferred, while the Boulogne call for the ships between London and New York was started.

In 1895 the Cunard liners *Sylvania* and *Carinthia* were built for the Boston service, the first twin-screw ships to be employed on it and designed for the carriage of a large cargo and cattle in addition to their passengers.

In deference to the insistent demand of Bostonians the ships, which normally carried second- and third-class passengers only, were given a few single-berth first-class rooms but the demand for bigger ships was only met by an occasional diversion of the *Servia*.

At the same time the good business which the Germans were doing on the Mediterranean run aroused Cunard interest. First the little old *Marathon* carried passengers and special cargo to connect with the *Lucania* at Queenstown and then the *Bothnia* tried a few direct sailings from Naples to New York.

With the *Georgic* the White Star Line further improved on its big cargo type, for she was given a tonnage of rather more than ten thousand and a deadweight capacity of thirteen thousand. In addition to her huge cargo capacity (and she was one of the biggest cargo carriers in the world), she had special accommodation for cattle and race horses and quarters for only a few passengers, although even they were seldom carried. On the passenger service they were still making time, although the reëngining of the *Germanic* effected a considerable improvement.

The North German Lloyd Company suffered an appalling disaster by the sinking of the *Elbe* in the North Sea after a collision with the sailing ship *Crathie*. Only fifteen of the crew and five passengers were saved. The German Court found the *Crathie* to blame for not keeping a proper lookout, but there was no getting away from the fact that the *Elbe* as a steamer should have kept clear. After that disaster the fact that the curse of broken shafts continued, the *Aller* breaking hers in home waters, passed unnoticed.

In 1896, the tonnage of the various Atlantic companies having improved so much since the British Admiralty's original auxiliary cruiser agreement ten years before, the whole machinery was overhauled. As the result the Cunard *Campania* and *Lucania* were paid an annual subsidy of £7,500 each, while the slightly older White Star *Teutonic* and *Majestic* were given a different rating, the former being priced at £7,285 and the latter at £7,396. At the same time the old 5-inch muzzle-loading guns, absolutely useless for such a purpose, were replaced by 4.7-inch breechloaders backed up by a number of .45-inch Nordenfeldt machine guns, which were then considered quite sufficient to stop a torpedo boat.

Only the crack ships were actually subsidized, but in order to secure the agreement the two companies promised to hold other ships at the disposal of the Government without extra payment, in the case of the Cunard the *Etruria, Umbria* and *Aurania* and in the White Star Line the *Britannic, Germanic* and *Adriatic*. It must be remembered that at this period the potential value of auxiliary cruisers was increasing rapidly, owing to the increased efficiency of the Royal Naval Reserve, which was beginning to be treated as a serious force by the regular naval officer.

The reports of a new Atlantic company proved true and in the summer of 1896 it was definitely announced, an amalgamation of the London-New York service of Messrs. Thomas Wilson, Son and Company and the United States interests of the Leyland Line, which combined to form the Wilson and Furness-Leyland Line with management in London. The other services of the component firms were not effected.

The capital of the new company was £550,000, and they had not the least difficulty in raising this sum. The Chairman was Mr. Charles H. Wilson M.P., while with him on the board were Mr. J. R. Ellerman and Mr. Wilfred Glynn of the Leyland Line, and Sir Christopher Furness and Mr. Arnold Wilson of the Hull Company. One of its first purposes was to build new and adequate tonnage for the various services, agreeing to add two new and big ships to the three vessels which had been contributed.

The Furness-Leyland combination contributed the *Georgian* and *Bostonian* already on the route and the *Cambrian* under construction, while the *Idaho* was also added to the fleet and the Leyland liner *Columbian* was chartered.

With this fleet they were able to establish weekly services from London to New York and London to Boston, but until they got things into working order they had to use a good deal of miscellaneous tonnage. The first sailings on the Boston service were taken by the *Virginian, Galileo, Bostonian, Columbian, St. Ronans* and *Borderer,* while the New York service was covered by the *Georgian, Richmond Hill, Ontario, Ludgate Hill* and *Hindoo,* but no time was lost in placing the orders for the new ships necessary.

In 1896 the Atlantic Transport Line decided to give up its Philadelphian service, and to concentrate its fleet on the main lines from the Thames to New York and Baltimore. This concentration coming with the Wilson and Furness-Leyland plan was a further handicap to the old National Line, which was forced to sell out its whole assets and London service to the Atlantic Transport in the manner already mentioned.

The new American liners were quite speedy vessels, although many preferred the old clipper-steamed *City of New York* and *City of Paris,* but they were not up to the expectations of their owners. They were therefore taken off service for a period and given rather bigger funnels and other alterations. A big difference was immediately noted and in August, 1896, the *St. Louis* established a westward record on the Southampton run of 6 days, 2 hours, 24 minutes at an average of 20.33 knots. In the same week the *St. Paul* made an eastward record of 6 days, 31 minutes from New York to the Needles, an average of 21.08 knots. Before the alterations their average speed was 18½ to 19.

But while the American liners were steadily improving their speed the *Lucania* was also improving and keeping comfortably ahead of them. In March she created a sensation by a passenger time of six days seven hours thirty-eight minutes from the New York pier to Euston Station. Determined to be in the picture the old *Etruria* started making twenty-knot passages quite regularly.

So successful had been the Hamburg American ships of the "P" class that they decided on a new and improved design, very much bigger. These were the *Pennsylvania, Pretoria, Patricia,* and *Graf Waldersee* which were built between 1896 and 1899, huge cargo carriers with accommodation for three hundred fifty first-class and twenty-four hundred emigrants. The *Pennsylvania* was the first in commission and her utility to the company is shown by the fact that, quite apart from her passengers, she carried as much cargo in a single voyage as the pioneer sailing ship *Deutschland* did in six years.

Successful as they were, they were very big for some of the services and in 1896 it was decided to build a smaller type of single-screw ship, all of them given names beginning with "A." They in their turn were so successful that they were followed from 1898 onwards with a "B" class, some single-screw, some twin, *Bulgaria, Belgravia, Batavia,* etc., which gradually worked up towards the "P" class in point of size. Economy was the main feature of all these designs, for they were intended for the intermediate and steerage passengers only, but there were so many of them that their construction forced the company to increase its capital time and again, so that it was more than doubled between 1897 and 1900. In March, 1898, the Hamburg American Company was able to claim the title of the biggest shipping company in the world, its gross tonnage of 336,889, comparing with the 286,734 tons of the Peninsular and Oriental Line which was its nearest rival. After that they began to compare their tonnage with that of whole countries instead of individual companies.

This big increase in their cargo fleet proved particularly useful in 1897 when the United States passed a heavy protective tariff and all the German merchants made a rush to get their goods into the country before it became effective. This not only gave profitable employment to all the Hamburg American Company's own cargo ships, but also forced them to charter no less than one hundred fifty-seven others, mostly from foreign flags. As it happened the Tariff Law did not affect transatlantic trade nearly as badly as was expected, so that the company was well in hand by the deal.

They were not neglecting their old ships. The popular *Augusta Victoria* was taken off service to be lengthened, modernized and made faster by Harland and Wolff. The North German Lloyd modernized the *Trave* and the *Saale,* bringing their speed up to eighteen knots again.

The new management of the Dominion Line started well by improving the tonnage of the fleet, getting delivery from Harland and Wolff of the *Canada.* She was a twin-screw ship of 8,806 tons gross with triple-expansion engines and proved herself a most successful passenger and cargo carrier.

The Thomson Line to Canada tried an experiment in the winter of 1896, when the St. Lawrence was frozen over, and sent its passenger steamers on the run between Newport News and London. The experiment was not altogether a success and in the following year the company returned to Portland (Maine).

The White Star Line took the veteran *Adriatic* off service in 1896, after a very successful career in spite of the numerous minor accidents that she had sustained. They laid her up for two years and then sold her to a shipowner who intended at first to run her but who thought better of it when he had examined her economy and who then took the first opportunity of breaking her up.

Another White Star liner that left the fleet, although in her case it was only to be temporarily, was the *Cufic*. At that time the Spanish Government was doing its best to put down the revolt in Cuba, but it was not altogether successful. It was necessary to transport large bodies of troops to deal with the guerillas and the subsidized fleet of the Compañía Trasatlantica was quite inadequate for the purpose. Therefore a number of ships were taken over on charter with a right to purchase and placed under the management of the Trasatlantica. The *Cufic* was renamed *Neuva Señora de Guadaloupe*. Among the others similarly taken up was the Cunard *Gallia* which became *Don Alvado de Basan*. She also was subsequently returned but was immediately sold to the Beaver Line. A little later the Hamburg American let them have the *Columbia,* but before she was due to be returned the Spanish-American War had broken out and she was taken over by the Navy as an auxiliary cruiser, being restored to her original owners in 1899 at a tithe of the price which they had received for her.

The most noteworthy mishaps of the year occurred to the Cunard *Catalonia,* another broken shaft which caused a serious leak and made her very glad of a tow into the Azores from the North German Lloyd *Braunschweig,* and the *New York* which drifted out of the Channel in the Solent and stranded but was refloated with little difficulty.

Eighteen ninety-seven was essentially the *Kaiser Wilhelm der Grosse's* year, the year which put German shipping on an altogether new footing and made its competition more than formidable to the existing companies. The express tonnage of the Lloyd Line was getting old and was not to be compared with the better ships of its competitors, with the natural result that the company was dropping down the list. Something had to be done if they were to maintain their place, but it had to be something really big and their financial position at the time was scarcely favorable for that.

However, after a good deal of careful thought, the directors decided to take the risk and try not only for the record on the Southampton route, but also for the Blue Ribbon of the Atlantic, aiming to attract not only the British passengers from Liverpool to Southampton but also the American holiday makers and business men who could make all the difference to the fortunes of the company. If the ships failed in this purpose there was every chance of the company being ruined and they protected themselves against this by proposing one of the most extraordinary contracts that has ever been put before shipbuilders. The trial trip was not to be a short spurt of a few hours, but the double passage across the Atlantic, and if the ships failed to maintain their guaranteed speed on this, the company was to have the right of returning them to their builders. Most shipbuilders would have turned down such a suggestion at once, but the German yards were just as anxious as the company to see the record transferred to the German flag, and two of them determined to take the risk, the Vulcan yard at Stettin building the *Kaiser Wilhelm der Grosse* and the Schichau yard the *Kaiser Friedrich*. Each yard built according to its own ideas, modified by those of the Lloyd's architects.

The two ships differed considerably in matters of detail. The *Wilhelm* was a four-deck, twin-screw steel steamer with four funnels in pairs, her dimensions of 627.4 by 66 by 35.8 depth of hold giving her a gross tonnage of 14,349. She was propelled by two sets of four-cylinder triple-expansion engines aggregating twenty-eight thousand indicated horse power and designed for a speed of twenty-two and a half knots. They were supplied by twelve double-ended boilers which weighed, with their water, nearly two thousand tons.

The *Kaiser Friedrich* was a very much heavier looking ship with three funnels and two masts, although her gross tonnage was very considerably less, 12,481. She was propelled by two sets of five-cylinder quadruple-expansion engines, having the same designed horse power as the *Kaiser Wilhelm*. Her dimensions were 581.7 by 63.9 by 44 feet depth of hold, a much deeper ship but shorter and narrower.

The *Wilhelm's* maiden voyage proved clearly that she was a flyer. Outward it was 5 days 22 hours 45 minutes, an average of 21.39 knots which was a record for the Southampton service although not quite up to the Cunard high-water mark. This was not to be expected with a brand-new ship, but she beat the record for a single day's steaming without any question.

Homeward she made the run to Plymouth, 2,962 miles, in 5 days

15 hours 10 minutes, at an average of 21.91 knots and after that she improved steadily, until on her third homeward passage she attained her owners' desire by an average of 22.35 knots in spite of delay incurred in standing by to help a burning ship in mid-Atlantic.

It will be noticed that Plymouth was then the Company's eastward port of call. In the spring the Lloyd Line had decided to make it so, reviving the experiment which they had made for a short time in the seventies but which they had then abandoned on account of what they considered to be excessive port dues. The Hamburg American already used the western port in that way, and although they were constantly threatening to leave it they found it very convenient. An added attraction was the greatly improved train service which the Great Western Railway had then recently started, so that with their new record breakers in mind the Lloyd directors decided that it was worth the experiment at least. It is interesting to note that they came to the same conclusion when they were considering the record breakers *Bremen* and *Europa* in 1928.

The company had taken a very big risk in ordering these colossally expensive ships, but once the *Kaiser Wilhelm der Grosse* had won the record there was no doubt that the expense was fully justified and that the results were most satisfactory. The Cherbourg call was instituted in order to take advantage of the steadily increasing traffic between New York and Paris, a call which added considerably to the company's income, but the greatest success was gained, as is usual in the case of record breakers, by the glamour cast over the whole of the fleet. So great a sensation was caused by their success that in 1898 the North German Lloyd carried twenty-four per cent. of all the passengers landed at New York, in spite of the fierceness of the competition. Quite a big proportion of these were emigrants from Northern and Eastern Europe, most of them carried by the smaller ships of the company but all quite happy in the reflected glory of the *Kaiser Wilhelm*.

This strengthened the Company's determination to build a whole class of express ships and caused them to take a step which was to have a considerable influence on their fleet and fortunes, the establishment of a naval architects' department at Bremen which was put in charge of Herr Walter, one of the foremost German designers. He worked in consultation with the builders and the results that he attained by this means were so striking that other companies soon followed suit. Then the Lloyd Company went one better, in 1899, by the foundation of an experimental tank of their own, rather an expensive business but one which produced excellent results.

It had been fully realized, of course, that the company could not run on record breakers alone. The *Barbarossa* type of two-funneled ships was designed to be interchangeable between the North Atlantic and the longer Imperial Mail service to Australia and the East. She started her career on the New York run with her second voyage and did well.

In 1897 the "Twenty Knots to Canada" craze was again revived, this time by Messrs. Petersen, Tate and Company, the cargo firm which had boosted the turret-deck steamer and was controlled by Mr. William Petersen, who was always a stormy petrel on the Canadian trade. They attempted to oust the Allan Line from the mail contract by promising to work up to the twenty-knots standard in a short time, but the scheme was more or less torpedoed when Messrs. Watts, Watts and Company, a firm of cargo shipowners who were among the principal shareholders in Petersen, Tate and Company, advised the shareholders to have nothing to do with it as they regarded the scheme as hopelessly impractical. Mr. — afterwards Sir William — Petersen, however, tried to put the suggestion forward right up to his tragically sudden death after the war.

The requirements of the main Canadian trade were proving more than a private firm could stand, even a concern of the reputation of the Allan Line. In 1897, therefore, it was registered as a limited liability company with an authorized capital of six hundred fifty thousand pounds in ten pound shares.

In spite of the keen competition, the Canadian business was doing well and Messrs. H. and C. McIver improved their position with regard to the Beaver Line by registering the Beaver Line Associated Steamers Ltd., having a capital of fifty-five thousand pounds which was nearly all held by the two McIver brothers.

When they had founded the company they immediately set about collecting a fleet which would permit them to meet the competition of the other concerns. The first purchase was the old Cunard *Gallia,* a fine ship when she was built in 1879 but long past her prime. She was a single-screw iron ship of rather more than forty-eight hundred tons with an original speed of sixteen knots with compound engines, but at that time considerably below it. The Cunard Line had worked her hard, so had the White Star when they chartered her and a period of trooping under the Spanish flag during the Cuban revolt which preceded the Spanish-American War did not do her any good. The Beaver Line paid £23,250 for her, a fair price considering her age, but they did not enjoy her long, for she was wrecked almost immediately in the mouth of the St. Lawrence and although salved was only considered to be fit for the scrappers.

Another purchase was the former North German Lloyd Liner *Ems,* which entered the Beaver service as the *Lake Simcoe.*

At the same time they chartered a number of steamers, including the Elder Dempster liner *Assaye,* a 5,129-ton ship of 1891 which was almost immediately wrecked, and the *Tongariro,* one of the crack ships on the New Zealand trade in the eighties.

Having found that their purchase of the State Line between Glasgow and New York was a success, the Allan Line purchased the remnants of the Hill Company which was advertised for sale in the spring of 1897. Although long past their prime the three ships that were left — *Tower Hill, Ludgate Hill,* and *Richmond Hill* — were useful vessels of over four thousand tons and as they had been designed to suit the Admiralty for use as troopers they were easily converted to emigrant ships and maintained the London service as the *Turanian, Livonian* and *Roumanian* respectively.

The next company to enter or rather to reënter the Atlantic service, principally for cargo but carrying a few passengers which steadily increased as their ships got bigger, was Messrs. Thomas Wilson, Sons and Company of Hull, who had built up a big trade to the Baltic, Northern Europe, the Adriatic and through the Suez Canal to India. For the purpose of the New York service, which was quite apart from the Wilson and Furness-Leyland Line in which they were interested, the *Othello* was taken off the Indian run and sent across the Atlantic from Hull as an experiment, giving sufficient promise to be reinforced by the *Colombo, Otranto, Leranto* and *Marengo* in succession. Then, as now, the Wilson Line, which is now part of the great Ellerman group, carried a red funnel and a black top, but the ships were easily distinguishable by their green hulls and white upper works. "Wilson Parrots" was their popular nickname.

The remnants of the 1891 American Line — *Ohio, Illinois, Indiana* and *Pennsylvania* — which had been running on the cargo service of the International and Red Star lines since 1884 were kept on by the new American Line for a while, but in 1897 it was felt that they no longer had a place in the fleet and they were sold to the Pacific Coast, where they ran for some years longer.

Naturally enough, the following year saw everybody wildly excited over the advent of the *Kaiser Friedrich,* and wondering whether she would do as well as the *Kaiser Wilhelm der Grosse* who was still clipping minutes and hours off her previous bests. Nobody could complain of the appearance of the new ship or the luxury of her quarters, but as soon as she got on service her times were very disappointing and quite useless to the North German Lloyd with their record-breaking aspirations. On her first voyage between Southampton and New York her time was seven days eleven hours westward and nine days two hours thirty minutes eastward. Her second voyage was six days twelve hours outwards and six days twelve hours ten minutes inwards. The third was no better — six days sixteen hours westwards and six days eight hours fifty-five minutes eastward. The fourth was worse, seven days exactly outwards and six days twenty-one hours forty-five minutes homewards. The company had long had the right to return her to the builders but they were very patient in the matter and ran her for eight voyages before they finally decided that nothing could be done with her and she was returned. The risk that Schichaus had taken is shown by the fact that she did not find a purchaser until 1912.

Apart from her, the main interest in the big ships during the year concerned itself with the Spanish-American War. As soon as it broke out, both countries prepared to make full use of Atlantic liners as auxiliary cruisers. The United States Navy already had four fine ships at its disposal, the *New York, Paris, St. Louis* and *St. Paul,* all specially designed for the purpose and it had been intended to use these for auxiliary cruisers ever since they had been under the American flag. Their big tonnage and sea speed of twenty knots appeared to be ideal and it had long been arranged that they should each have an armament of eight 5-inch quick-firers and eight 6-pounders. As there was already a cruiser named *New York* in the United States Navy, that ship was temporarily rechristened *Harvard* to avoid confusion, and the *Paris* was given the name of *Yale* alongside her, but the *St. Louis* and *St. Paul* hoisted the pennant under their own names.

The *New York* was in Europe when the call came and dashed back at full speed without passengers or cargo, unfortunately cracking a cylinder on the way. While the big ships were on naval duty the mail service was carried on by the British ships.

Their American mercantile crews volunteered for naval service almost *en masse,* and their peace-time officers were entrusted with the navigation and complete management of the ships in normal circumstances. A naval captain, with a cadet as aide, took command of the vessel in action, and a detachment of fully trained marines was also put on board each ship. Unfortunately there were not sufficient guns available when war broke out to give them their proper armament and three of these ships went to sea with only 6-pounders, pending the arrangement of better supplies. In the circumstances it was perhaps lucky that they did not get into touch with the Spanish fleet while in this unprotected state, but even had they done so there is no doubt that they could have shown a clean pair of heels to any of Cervera's cruisers, whose performance bore little relation to their legendary speed. But without them the United States Navy would have been in very sorry plight, for it was deplorably short of cruisers and nobody knew just where the enemy was to be found.

On the other side, the Spanish Government had always made a point of subsidizing the ships of the Compañía Trasatlantica for auxiliary cruiser purposes, but although one or two of them were armed and prepared for use as transports no real use was made of them. They found the nineteen-knot liners which were surplus to German requirements much more potentially useful. The Hamburg American *Columbia* they already had on charter with the option of purchase, so they took her over as the *Rapido*. Her sister the *Normannia* they bought for twenty-three thousand pounds and renamed *Patriota,* selling her to the Compagnie Générale Transatlantique immediately after the war for three and a half million pesetas. The North German Lloyd *Havel* became the *Meteoro*. The first two were armed with four 6.3, four 4.7, two 3.2 and four machine guns, but the work proceeded so slowly that they were not ready for sea by the end of the war.

The high speed, habitability and good radius of action of the American auxiliaries made them particularly useful to the Navy, and on their part the naval staff put them to good use and did not make the mistake of giving them duties to which they were ill-suited. When the position of Admiral Cervera's fleet was still uncertain they were valuable in the outpost line, and when the main fleet was kept busy bottling up the Spaniards in Santiago the auxiliaries were able to undertake a number of minor operations and keep a lookout for blockade runners without weakening the fighting squadrons. The American use of auxiliary cruisers was in fact a very excellent object lesson to European navies, but only in certain quarters was it properly studied.

Even after it was ended the war still had its effect on the Atlantic Ferry, for to repatriate their troops from the lost island the Spanish Government chartered the Anchor liner *City of Rome,* the Cunard *Bothnia* and the North German Lloyd *Fulda*. When she had finished that work the *Fulda* was sold to McIver's Beaver Line, but while she was being refitted in dry dock she fell off the blocks and was so badly damaged that she was condemned and scrapped in Germany. The Cunard Line sold the *Bothnia* immediately the Spaniards had finished with her.

The very early stages of the war showed the United States Government that they were deplorably short of transport facilities for any large-scale operations, and accordingly the seven suitable ships of the Atlantic Transport Line were transferred to the United States Government as transports, the newly complete *Mississippi* and *Michigan* and the older *Massachusetts, Mobile, Manitoba, Mohawk* and *Minnewaska,* which were rechristened after famous generals in the American Civil War.

At the same time the company presented to the United States Government the steamer *Missouri* for service as a hospital ship. She fulfilled those functions well during the war and after the peace was added to the United States Navy.

The purchase of the former Guion liner *Arizona* for the same purpose has already been mentioned. She became the *Hancock,* while the name *Meade* was bestowed on the old *Berlin,* and *Sedgwick* on the *Chester,* acquired at the same time.

The purchase of the Atlantic Transport Fleet, just when they had built up such a flourishing business, was a serious blow, but Mr. Baker had already made an offer for the purchase of the steamers and goodwill of the Wilson and Furness-Leyland service between London and New York, and when his own ships went he was willing to increase his offer to £968,000, to include the promise that the vendors should not enter the Atlantic service for seven years, but exclusive of the additional sum which was paid for the West End offices and the New York berth. The ships so acquired were the *Alexandra* (renamed *Menominee*), *Cleopatra* (*Mohegan*), *Winifreda* (*Mesaba*), *Victoria* (*Manitou*), and *Boadicea* (*Marquette*). Of these the only unlucky one was the *Mohegan,* which was wrecked on October 14, 1898, all the others seeing long service with the company. The cattle and cargo steamer *British Crown* was also purchased from the British Shipowners Company and renamed *Mackinaw.*

While the Atlantic Transport Company was thus increasing its assets, a British concern that was really American owned, it was decided that the situation was not exactly advantageous and accordingly in 1898 the Atlantic Transport Company of West Virginia was registered to own the assets of the Atlantic Transport Line. Later it was to own a number of ships under the American flag.

There was a sensation in the Canadian trade at the end of the year, when without any warning it was suddenly announced that the Beaver Line agency had been transferred to the Elder Dempster Line, which has been mentioned as having entered the Canadian trade with the Beaver Line's Avonmouth service. As may well be imagined, with the McIver concern having registered the Beaver Line Associated Steamers, there was a very pretty tangle and it was some little time before the matter was entirely settled and the McIver interests disappeared from the trade.

The Elder Dempster Line had already done a good deal of preparatory work for this move, and they had excellent opportunities for building up their fleet in the cargo business that they were running in conjunction with Sir Christopher Furness. The *Monarch* and *Milwaukee* were originally built for the Bristol service in 1897, ships which were originally about seventy-three hundred tons gross, although later the *Monarch* was made considerably larger. At the time they were the two biggest British cargo carriers afloat and naturally attracted a good deal of attention. Their deadweight capacity was eleven thousand five hundred and they could carry a large number of cattle and a few passengers in addition to their cargo, while their triple-expansion engines were designed for a speed of twelve knots. The lofty 'tween-decks which they were given with the idea of converting them into emigrant ships if necessary made them ideal transports and the British Government made full use of them during the Transvaal War.

The *Montrose* of 5,440 tons gross was also built in that year, designed from the first for the Canadian trade and specially fitted for the carriage of dairy produce as well as emigrants. Somewhat similar were the *Montcalm* and *Monterey* of 1897, and the *Monteagle* of 1898, having a speed of thirteen knots that was slightly reduced in the larger *Montfort* of 1899. The Mount Royal of 7,064 tons had been built in 1894 and was ready to run beside them, so that Elder Dempster's Beaver Line started with a far stronger fleet than the McIver interests could muster, in spite of the fact that they bought the old Pacific Steam Navigation Company's *Lusitania* of 1871 and the *Ruapehu* of 1883, a sister ship to the *Tongariro*. They finally gave up a very gallant fight and went into liquidation in 1900.

Before the McIver interests took this decision the Elder Depster Company had prepared a further fleet for the Beaver service and had given the ships traditional Beaver names. *Lake Erie* and *Lake Champlain* were the first two ships to be built, one in 1899 and the other in 1900, twin-screw ships of 7,550 tons with excellent passenger accommodation and quite a good speed.

The old Allan liner *Manitoban* had a curious charter in 1898 when she was taken up by the United States Government to go right up into the Arctic Circle and collect Norwegian reindeer for transport to New York. They were then sent across the continent and shipped to the Klondyke gold fields, where food in the winter was a great problem and where they were also very short of transport.

Some very interesting new ships came out during the year. From Harland and Wolff's yard the Holland American Line got the *Statendam* which marked quite a new standard of their tonnage, a twin-screw 15-knot ship of 10,491 tons which was a considerable improvement on the *Rotterdam* of 1897 and which was soon followed by three others of similar type. The Cunard *Ultonia* was designed for the Boston service, a four-masted schooner with one funnel and a gross tonnage of 8,056, her sea speed being a steady 12 knots. The White Star *Cymric,* which was launched towards the end of the year, was a far more important ship with a gross tonnage of 12,552 and quadruple engines of 6,700 horse power giving her a speed of 15 knots. She carried a huge cargo in addition to one hundred first-class passengers. For its augmented service the Dominion Line planned important new tonnage but in the meantime chartered the *Lancashire* and *Yorkshire* from the Bibby Line, ships which normally ran to Rangoon and which were not exactly suitable for the Canadian service.

The year 1898 was particularly bad for broken shafts. The Cunard *Catalonia* broke hers and it cost £2,210 in salvage to the steamer *Delaware*. Then the *Aurania's* went, causing other damage, and the salvage award was £2,500. The *Paris* broke her starboard shaft but was able to proceed on her port and finished the passage in ten days seven hours fifteen minutes, giving additional proof of the value of twin screws.

But the *Lucania's* object lesson in this direction was the most interesting, for she broke a piston rod of one of her engines but was able to complete her voyage in six days eleven hours fifteen minutes and was not delayed a day on her next sailing because she was able to take its exact duplicate out of the *Campania,* which happened to be laid off for a spell for renovations. Soon after, however, she was not so lucky, for she broke her starboard intermediate piston, happily when she was practically home, and on that occasion the *Campania* was on service.

The Thingvalla Line, which had maintained an emigrant service between Denmark and the United States, was wound up in 1898, its business having been taken over by Det Forenede (the United) Line.

The sale of the *Normannia* and *Columbia* to Spain had rather crippled the Hamburg American's express service, but immediately after the war the latter ship was bought back at a very low price although she had scarcely been used by the Spaniards, and the *Kaiser Friedrich,* rejected by the North German Lloyd, was chartered for a number of voyages to replace the *Normannia.* They did not, however, equal the Bremen service which was succeeding wonderfully on the prestige of the *Kaiser Wilhelm der Grosse's* record, so that Herr Ballin took a voyage in that ship in order to study her carefully before deciding on his future program.

The result of this voyage was that they placed an order with the Vulcan yard at Stettin for the famous *Deutschland* which came out in 1900 and for a short time wrested the Blue Ribbon from the Lloyd.

Herr Ballin, acting in conjunction with Lord Pirrie of Harland and Wolff, also revived a suggestion that he had put forward some time previously to amalgamate the Atlantic Transport and the Hamburg American Line by means of an interchange of shares. Pirrie at that time was getting very anxious lest the Atlantic Transport should ally itself with the Leyland Line, in which he saw danger to his own Atlantic interests, while Ballin saw that the Atlantic Transport-National service might be worked up into a very big thing. When they came to discuss terms, however, the money required to take up the Hamburg American shares was prohibitive and the negotiations fell through, so that the Atlantic Transport and Leyland lines subsequently amalgamated and both went into the International Mercantile Marine.

That was only one of the Ballin's ideas, and they were not all failures by any means. At this time the flood of Italian emigration to the West was assuming tremendous importance and although it was very largely moved by the Lloyd-Hapag's joint service, the Italian Government had already adopted the policy which they have since followed consistently and gave very strong preference to ships under the Italian flag. This was a great disappointment to the Hamburg American Line who had hoped great things of the Italian business, but they got over it in 1899 by founding the Lloyd Italiana Line under the Italian flag with a capital of five million lire, securing a heavy controlling influence. It did not, however, prove nearly as profitable as was expected and the company sold its shares to Italian interests in 1905.

The next storm appeared to be gathering in the West, where Senator William P. Frye, Chairman of the Commerce Committee was the sponsor of the United States Shipping Subsidy Bill which was introduced by Senator Mark Hanna on the advice of Clement A. Griscom of the American Line. The principal objection to the bill, which was for the subsidizing of mail steamers with a view to building up a naval reserve, was that it would establish a precedent that would be taken advantage of by every lobbyist who had an eye on the resources of the Treasury.

Considering the attention which is centered on the subject of sail training nowadays it is interesting to note that in 1899 the North German Lloyd, being rather apprehensive of the supply of efficient ships' officers, started a most interesting training scheme which was based on its broad outlines on the British scheme maintained by Messrs. Devitt and Moore but which differed from its predecessor in numerous details. The original plan was that they should purchase a sailing vessel, but before the scheme had been in operation very long it had proved itself so successful that a second was bought. The first was the four-master barque *Albert Rickmers,* a modern sailing vessel launched in 1895, having a gross tonnage of 2,395. She was rechristened *Herzogin Sophie Charlotte* and on the experience of her working a second ship was afterwards specially built, the *Herzogin Cecilie* which after the war and under Finnish ownership was to make a great reputation in the Australian grain races.

In order to be accepted under this scheme, the applicants had to be eighteen years old and to have passed the leaving-school examination which entitled them to have only one year's conscript training instead of three. The first year was served as a boy, the second as an ordinary seaman, and the third as an A.B., the intention being to admit between twenty and thirty cadets at the beginning of each year so that the ships were always manned by between sixty and ninety. After he had finished his three years in the sailing ship, the embryo officer had to serve for a year as a quartermaster in one of the North German Lloyd steamers.

The ships had a full staff of instructors and in addition to seamanship and navigation the lads completed their general education on the lines which the company thought would fit them best for their future service. Languages were a strong point, with a very high standard set in English, while close attention was also paid to the history of the sea powers, particularly Britain and Germany. For this training, which would do a lad no harm, even if he finally decided not to go in for the sea, fees of six hundred marks per annum were charged. From the beginning the company were lucky in obtaining the patronage of the Grand Duke of Oldenburg, who always interested himself in sea training and was also the patron of the German Schoolship Association.

The great ship of the year was the White Star *Oceanic,* built by Harland and Wolff, like all White Star Ships. She made no effort to compete with the North German Lloyd flyers in speed, but she inaugurated a policy which the company has followed ever since, to make their first-class mail steamers aim at large size and extreme comfort rather than high speed. On dimensions 685 by 68 by 44 feet depth of hold, she had a gross tonnage of 17,274, which made her the first ship that had ever exceeded the old *Great Eastern* in length, while her two sets of four-cylinder triple-expansion engines gave her a speed of a shade more than twenty knots which enabled her to make good crossings, but at the same time permitted her design to include the most solidly comfortable accommodation ever put into an Atlantic liner.

The Allan Line greatly improved its fleet by the addition of four useful vessels. The *Sicilian* and *Corinthian* were twelve-knot emigrant ships with a gross tonnage of about sixty-three hundred and having stowage for six hundred head of cattle in addition to their passenger accommodation. The *Bavarian,* built by Denny of Dumbarton, was a more imposing ship, having a gross tonnage of 10,376 and a speed of 16 knots in spite of the fact that she had good accommodation for over 500 passengers and excellent cargo stowage. The *Pretorian,* which followed her shortly afterwards, was an improvement on the *Sicilian* and *Corinthian,* her tonnage being 6,436 and her speed 14 knots.

Just before the end of the year the Compagnie Générale completed the reconstruction of the former *Normannia,* putting her on to the New York service as *L'Aquitaine* in December.

But as things were settling down nicely, the Atlantic service was dislocated at the end of 1899 by the outbreak of the Transvaal War, when a number of liners were taken up by the British Government to carry troops out to South Africa as quickly as they could be mobilized. With their high speed and the special arrangements that the Admiralty had always made to use them as transports in wartime, it is only natural that the Atlantic liners should be the first to be so commissioned. *Umbria, Catalonia, Pavonia* and *City of Rome* were among the first to go, followed closely by many others. But it is to be feared that they were not nearly as successful as many had hoped, the obvious reason being that they were not designed to undertake anything like the work to which they were put and therefore did not make nearly such a good showing as the smaller and slower mail steamers which were generally employed on that or on similar routes.

The need was so pressing, however, that there was no time to consider whether a ship was really efficient or not, all that mattered was whether she could carry troops. And that the Atlantic liners certainly contrived to do, being responsible for the movement of a very large part of the Army. The matter of the bill to be paid was reserved for future consideration.

While the British Government was chartering so many transports, one of the good old-timers saw war service in a manner that is well worthy of notice and is a fine tribute to the real deep-seated sympathy between the English-speaking nations. As soon as the war broke out the Atlantic Transport Line offered their pioneer steamer *Maine* to the British Government as a hospital ship, her crew to be maintained at the expense of the company as long as they were needed. The offer was appreciated, but the British Admiralty was a little doubtful as to the expense of fitting her for the purpose. But a large party of American ladies immediately formed their own committee, collected over forty thousand pounds and completely equipped her for her duties. She did magnificent work both during the South African campaign and the Boxer Rising, and when she finally returned in 1901 the company presented her to the Royal Navy, while the American ladies were equally generous in giving her up-to-date hospital equipment. She served as the Navy's only hospital ship until she was wrecked just before the World War.

The century closed with the usual quota of accidents to ships on the Atlantic Ferry, although the reduced number of single-screw ships afloat meant that there were fewer broken shafts. The most important was the wreck of the American Liner *Paris* which stranded on the Manacles. For a time her case looked hopeless, but with a great deal of difficulty the salvage people contrived to get her afloat and she was soon in service again as good as ever. The *Germanic* had a curious accident, for when she was alongside her pier at New York so much snow and ice fell on her deck during a blizzard that it weighed her down and she foundered in the harbor, being floated quite easily but only after a lot of damage had been done to her fittings and furniture. The Cunard *Pavonia* on the Boston service also had an extraordinary mishap, for in heavy weather all her six boilers wrenched adrift from their seatings and twenty-five guineas per cent. was being paid on her reinsurance before she was towed into the Azores by a steamer which drew five thousand pounds salvage. The North German Lloyd steamer *Bulgaria* was also seriously overdue but she turned up in the end.

As far as accidents and their possibilities were concerned, the end of the century saw an event which was to have wonderful results. In November, 1899, the American liner *St. Louis* was given the first wireless telegraphy installation on shipboard.

## *Chapter VIII: The Turn of the Century*

The twentieth century opened with every prospect of great excitement on the Western Ocean. The North German Lloyd Line had suddenly jumped into a prominent position, and with the company had jumped German shipping, which upset all calculations. The Hamburg American Line was determined to take full advantage of the opportunity offered and did not mean the rival Bremen concern to have any too full a share of the credit, while the British lines fully realized the serious position that they were in and the upward tendency of shipping in consequence of the Boer War led American promoters to consider a number of projects. Altogether the time was ripe for rapid development and exciting competition.

Considering the influence which wireless telegraphy was to have on the North Atlantic trade within the next few years it is only appropriate that the first development should take place right at the beginning of the century.

In February the North German Lloyd Company carried out at its own expense a number of experiments with the Marconi system, fitting an installation on board the *Kaiser Wilhelm der Grosse* and another in the Borkum Riff light vessel, and being delighted to establish communications with Lloyd steamers twenty-five miles away, or even more. Later the receiving station was moved to the Island of Erns, which had better facilities for reporting the incoming ships. When the company had gone to this expense in proving the value of the apparatus the German Post-office stepped in and took over the station. About the same time the Hamburg American Line was experimenting with the Slaby-Arco system which was installed in the *Deutschland*.

To begin with, the principal British companies were very severely handicapped by the disorganization caused by the Government's requisitions for the transport services to the Transvaal War. The early disasters to British arms caused an unforeseen rush of troops to South Africa and the authorities had little time to choose the most appropriate tonnage, even if the transport department had been properly organized. The big ships which had been earmarked for Government service under the various naval subsidies were taken up and in those dark days the public got very considerable comfort out of the thought that the crack Atlantic ships were rushing troops out to retrieve the situation.

The White Star Line supplied four mail steamers of 33,280 tons, and the Cunard six of 38,411, in addition to a number of smaller ships for the carriage of mules, stores, etc.

This depletion of the Cunard mail fleet would have been a very serious matter indeed had it not been that they were saved to a certain extent by the delivery of the *Ivernia,* soon followed by her sister the *Saxonia*. These ships were designed for the Boston service, and on a length of five hundred eighty feet between perpendiculars had a gross tonnage of about fourteen thousand and displacement of twenty-five thousand tons, carrying a very big cargo in addition to one hundred sixty first-, two hundred second- and sixteen hundred third-class passengers. To many people they were the best ships on the Atlantic Ferry, for they were very comfortable and marvellously steady, while their speed of fourteen knots with quadruple-expansion engines suited the convenience of many travelers excellently. But the general public was apt to be more interested in the fact that they were given the biggest funnels afloat, no less than one hundred six feet high, although the big freeboard of the ships prevented their being very conspicuous when they were at sea.

Their commissioning helped the mail service tremendously, but it did not satisfy Boston travelers, who were very bitter about the sudden curtailment of their facilities. When the new ships finally got on to their proper run, however, they soon made themselves remarkably popular and former faults were forgiven.

The German companies were not similarly inconvenienced by the troubles of the time, for although the North German Lloyd and Hamburg American lines were jointly entrusted with the transport of the German Expeditionary Force and its stores to the Boxer Rising in China, most of the ships employed were those already running on the long-distance services and the Atlantic passenger run was practically undisturbed.

The shipping amalgamations which were to be so conspicuous a feature of the decade began early when the syndicate started by the first Lord Furness and Mr. Walter Glynn, which had purchased the Leyland Line in 1892, took over the West India and Pacific Steamship Company in 1900, and with it obtained a fine fleet of nearly thirty steamers and an excellent connection to the West Indies and New Orleans, which had been built up most carefully since the sixties. The shareholders of the "W. I. and P." were well enough satisfied — they got sixty-two pounds for every twenty pounds paid-up share — but the move caused a big stir in shipping circles and eventually brought about the formation of the International Mercantile Marine which swallowed both concerns. There were many who considered this finance on the risky side, but when the International Mercantile Marine bought the Leyland Line, as will be described later, they were willing to pay fourteen pounds ten shillings per share, so that each original ten pound share brought ninety-one pounds to its lucky possessor. The immediate result of their access of tonnage was that the Leyland Line entered the New York service with big cargo ships carrying a few passengers.

As soon as it had recovered from that shock the business got the report, fully authenticated, that the Leyland Line under the insatiable John Ellerman, later to be one of the biggest British owners, was absorbing the Atlantic Transport.

Negotiations certainly were in progress, although they came to nothing. In the meantime the Atlantic Transport did not let them interfere with their plans of expansion. They had done well on the London passenger service since they had purchased the Wilson Furness Leyland fleet in 1898, but they felt it was capable of further development and in 1900 they gave Harland and Wolff orders to build the famous trio of the *Minne* type to run between Tilbury and New York. *Minnehaha, Minnetonka* and *Minneapolis* were sister ships of roughly thirteen thousand five hundred tons, with a speed of sixteen knots with quadruple-expansion engines and remarkably comfortable accommodation for two hundred fifty first-class passengers. They began to go on service in 1902 and immediately proved themselves exceedingly popular.

Then came the great sensation, the Hamburg American Line's one attempt at the Blue Ribbon, when the Vulcan yard launched the famous *Deutschland*. When they sold the *Columbia* and *Normannia* to the Spanish Government in 1898 to be converted into cruisers for use against the United States, they invested the money in a new ship which was to beat the *Kaiser Wilhelm der Grosse,* whose speed record had proved invaluable to the North German Lloyd, and they attached such importance to the record that they gave the builders an absolutely free hand.

She was a steel twin-screw ship of 16,502 tons gross on dimensions 660.9 by 67.3 by 40.3 depth of hold, considerably longer but very little broader than the *Kaiser Wilhelm*. Her engines were two sets of six-cylinder quadruple-expansions, the contract horse power being thirty-three thousand and the speed twenty-three knots. They were supplied by twelve double-ended and four single-ended boilers. Her great handicap was vibration, although the company carried out a number of most interesting and important experiments to eliminate it, and this eventually caused her withdrawal from the main line.

She was a passenger carrier pure and simple, originally having accommodation for seven hundred first-class, three hundred second-class and two hundred eighty third-class passengers, and if appearances were the primary consideration of a passenger ship she would have been an unqualified success, for she was one of the most graceful and perfectly proportioned liners ever put afloat.

Her career was somewhat varied. She left her builders' yard at Stettin in tow of seven tugs, but stranded on the Modder Bank. The salvage steamer *Seeadler* and two big German men-of-war joined the seven tugs in an effort to refloat her, but their efforts were unavailing for nearly a fortnight and she finally got off the day she was supposed to have started her maiden voyage. When she did start off she did well, her maiden westward passage being 5 days 17 hours 27 minutes, a mean speed of 22.42 knots. Eastward she did better, averaging twenty-three, but she was not nearly as consistent a performer as the *Kaiser Wilhelm,* and the North German Lloyd naturally took immediate steps to prevent her keeping the record for any considerable time.

It is interesting to note that in both the *Deutschland* and the

The Hamburg American *Deutschland* of 1900 Which Won the Blue Ribbon for a Short Time from the North German Lloyd

*Celtic,* First of the White Star "Big Four" Class; Comfortable and Capacious

*Caronia*, The First 20,000-Ton Cunarder Designed to Test the Turbine Engines Fitted in the *Carmania*

The White Star *Megantic*, Built to Reinforce the Dominion Line's Canadian Service

*Kaiser Wilhelm der Grosse* the German yards were forced to go to British establishments for a number of minor contracts. In both the ships the steam steering gear was by Brown Brothers of Glasgow. Numerous other contracts were placed in Britain in similar fashion, principally connected with the engine room, but the Germans took every precaution to prevent the fact being generally known and discussed.

But the Lloyd Line started the contest with the worst of luck, for they were very hard hit by the ghastly dock fire at Hoboken on June 30, 1900. It broke out among some cotton on the company's piers and spread with remarkable rapidity; within nine minutes all four piers, packed with merchandise, were blazing furiously. *Main, Kaiser Wilhelm der Grosse, Bremen* and *Saale* were caught without steam and had to be towed away from the blazing piers by tugs. There was a lot of very bitter criticism concerning the New York tugs on that occasion but they contrived to get the record breaker across to the Cunard piers on the other side of the river in safety, although she was badly singed. The *Saale* was towed clear with a dozen men clinging to her rudder and her captain died a heroic death while looking after his people. She was abandoned by those who could get away and drifted down on to the Communipaw Flats, close to the Statue of Liberty, one hundred nine lives being lost with her. The *Bremen* and the *Main,* whose death rolls were twelve and forty-four respectively, drifted up river and grounded off Forty-second Street. Perhaps the most awful feature of the tragedy was that many of the deaths would have been avoided had the portholes of the ships been only a few inches wider, many of their people being burned to death while frantically trying to struggle through.

While the North German Lloyd and Hamburg American lines were thus at bitter rivalry they arranged a fusion of the sinking funds which each company had founded in lieu of insuring their ships. This fusion did not interfere with the rivalry in other fields, and although it gave rise to many reports that the two companies were to combine there was, as usual, nothing in the belief.

The Compagnie Générale Transatlantique had intended to have their new tonnage ready for service by the beginning of the century but their plans were delayed by the slowness of the French Parliament in passing the agreement. It was not until the summer of 1898 that anything definite was decided, and the company immediately made preparations to build a new fleet that should be capable of twenty knots at sea, the ships to be a considerable development of the approved design of *La Touraine. La Lorraine, La Savoie* and *La Provence* were built in this way, fine-looking ships with a gross tonnage of about eleven thousand eight hundred, propelled by two sets of four-cylinder triple-expansion engines developing twenty-two thousand horse power and giving the ships a speed of twenty-two knots.

In their design much more attention was paid to luxury than in previous Compagnie Générale Transatlantique ships, 68 of the passengers being officially labeled *de luxe,* in addition to 378 first, 118 second and 398 third class, and a certain amount of cargo. One of the main considerations which prompted the French Government to assist in their construction was their utility as auxiliary cruisers in wartime, for which they had an armament of seven 5.5-inch guns in addition to a number of one-pounder revolver cannon.

When these ships were approaching completion the shareholders of the company discussed the question of their yard at Pennoet — St. Nazaire, where most of their ships had been built. It was a fine establishment, spreading over twenty-five acres and employing over forty-five hundred men, but their main program was by then nearly finished and they had the prospect of tying up the capital sunk in the yard for an indefinite period, just when they were likely to want it most for their fleet, and having to pay off the men for lack of work. It was therefore decided to sell the establishment to a company that could look for orders outside the Compagnie Générale Transatlantique, although that did not necessarily mean that they were going to cease supporting it. Their minor repair establishment, which had been worked up to a fine pitch of efficiency, it was decided to keep.

The subsidy contract under which these ships were built was to commence in 1901 and was to last for ten years, insisting on the construction in French yards of four new ships with a trial speed of at least twenty-two knots. It was not necessary to build them all at once, the fleet constructed under this arrangement being the three already mentioned and *La France,* which was not built for some years. Following the German example, the French Government insisted on a steadily rising minimum speed for their mail services, particularly the New York service which was in direct competition with the Germans. The actual mail subsidy was decreased, but it was possible for the company to make very much bigger sums on the special speed bounty, and although this contract was made the subject of a good deal of deplorable political discussion, there is no doubt that it went to improve very greatly the standard of French shipping on the North Atlantic and very much strengthened the position of the Compagnie Générale Transatlantique.

But it was a bitter disappointment to them that the ships were not ready in time for the great Paris Exhibition of 1900, from which they would have reaped a fine harvest. All Atlantic shipping men realized the possibilities of the Exhibition; under Albert Ballin the Hamburg American Line took the greatest advantage of it. They leased two big hotels, entire, for the convenience of their American passengers, to whom they were able to give every comfort, while the passengers of many of the other lines found great difficulty in getting any sort of accommodation at a reasonable price. The Hapag was rewarded for its enterprise by the ability to pay a dividend of ten per cent. for the first time for many years.

The Hapag also made big money out of the cruising business, and having worked up a connection during the off season with the big Atlantic liners, decided to take advantage of the other seasons by building a sizeable steamer specially for the purpose. The *Prinzessin Victoria Louise* was the first German ship to be specially designed for this service and was given the hull of a yacht with a long clipper stem and bowsprit and looked remarkably fine with white paint and yellow funnels. She carried first-class passengers only, accommodated in beds instead of bunks, and many of her cabins were single ones. The Kaiser was most interested in the venture and supplied a number of sketches embodying his proposals. She was ready for service in 1901 and took her maiden sailing from New York to the West Indies, later arranging cruises to the Mediterranean and Black Sea, Norway, the northern capitals, etc. She was so designed that she could be used on the regular transatlantic service if necessary but she was generally kept far too fully employed in her proper work.

When the American liner *Paris* was salved from the Manacles in 1899 she was nearly five months being patched at Milford Haven and was then sent up to Harland and Wolff's yard at Belfast for permanent repairs and at the same time was modernized in every particular and her former three funnels replaced by two. Her American ownership was accented by rechristening her *Philadelphia*. So successful was the conversion that the *New York* was similarly treated. The job was a very expensive one, running into something like two hundred thousand pounds in the case of the *Philadelphia*.

In addition to modernizing their American Line ships the International Navigation Company went to John Brown of Clydebank for the *Zeeland* and *Vaterland* for the Red Star service from Antwerp, an exceedingly interesting pair which showed a great advance on their previous tonnage and which maintained their favor for many years. The arrangement of two funnels and four masts was most sightly and on their gross tonnage of roughly twelve thousand these ships contrived to crowd a full quota of earning possibilities, good passenger accommodation as well as cargo capacity, while their speed of fifteen knots permitted them to leave Antwerp and New York on Saturdays with the assurance of being able to land their passengers at the other end of the voyage on Monday morning.

The first ship built by the Allan Line in the new century was the *Tunisian,* coming from the yard of Stephens of Linthouse. She was a great improvement on the *Bavarian,* a gross tonnage of 10,576, a trial speed of nearly 17 knots, and accommodation for a large number of passengers in addition to 9000 tons of cargo.

At the end of the year the Dominion Line strengthened its Boston service by the *Commonwealth,* a twelve thousand-ton sixteen-knot Harland and Wolff ship which was an improvement on the rather older *New England* and *Canada.* She is best remembered as the White Star *Canopic,* which she became in 1903.

The advent of all this new tonnage seemed a risk, but at the beginning at least it was fully justified by the trade. In 1899 there had been 826 arrivals of passenger ships in the port of New York;

in 1900 this number was increased to 838. The saloon passengers, using the term in its legal sense to denote everybody except emigrants, had increased from 107,000 to 137,000, while the steerage passengers had also gone up from 303,762 to well over 430,000.

In the rivalry between the two German companies the influence of the *Kaiser Wilhelm der Grosse* was still felt by the North German Lloyd, for although the Hamburg American made one hundred twenty-one trips and were very well satisfied with twenty-three thousand saloon passengers, the North German Lloyd carried many more with only one hundred two trips. The British companies did not stand the same opportunity because of the interruption of their sailings owing to the South African War, but the Cunard saloon figures were up five per cent. and the White Star seventeen per cent.

In considering these figures it must be remembered that the British tendency to travel by German liners, started when the Lloyd won the Blue Ribbon, was checked by Germany's open sympathy with the Boers in the South African War.

To take advantage of the more promising trade two new companies were on the tapis, although neither of them came to anything. One was to be called the Royal Ulster Steamship Company and was to be owned and registered in New Jersey, although its ships were to fly the British flag and were to maintain a service between Liverpool, Boston and New York, mainly for cargo but carrying a few passengers. The plans included subsequent extension to the West Indies and South America but they came to nothing.

Another American scheme was for the Atlantic Shipping Company, which was going to build 750-ft. steamers, capable of a speed of twenty-five knots, maintaining a service between New York and Germany with a call at Dover. This scheme however was entirely dependent on the post-office subsidy that was never granted.

More substantial was the effort of the Furness Withy Company to start a passenger service between Liverpool, Halifax and St. John, for which they built two very pretty little clipper-stemmed steamers, the *Evangeline* and *Loyalist*. It was found that the possibilities of the passenger business were overestimated and the ships were soon sold to the Lamport and Holt Line for the South American service.

All other events in 1901 were overshadowed by the advent of the North German Lloyd *Kronprinz Wilhelm* and the White Star *Celtic,* two magnificent vessels representing entirely different schools of thought but both remarkably successful in their own way.

The *Kronprinz Wilhelm* was a development of the *Kaiser Wilhelm der Grosse* and was designed to run alongside her and keep the Blue Ribbon in German hands without the shadow of a doubt. She was built by the Vulcan yard at Stettin, launched on March 30, 1901, and was given quadruple-expansion engines of thirty-three thousand horse power for a speed of twenty-three knots. Her passenger accommodation was 593 first, 362 second and 696 third and when she made 23.34 knots on trial with only about 90 per cent. of her full power, Bremen got wildly excited and waited to see what she would do against their Hamburg rival the *Deutschland.* Westward they were in for serious disappointment, for the worst of weather prevailed, but eastward she averaged 23.01, the fastest maiden voyage on record. Later she did a passage at an average of 23.47 knots and there arose a bitter controversy as to whether she or the *Deutschland* really possessed the record. The Hamburg American company succeeded in establishing their claim, but there was not the least doubt that the *Kronprinz* was a far more consistent performer and her owners were already building new tonnage to put the matter beyond all doubt.

The *Celtic* was quite a different ship, built on the same principle as the *Oceanic* of 1899 — to give extreme comfort instead of extreme speed. Her length was 680.9 feet between perpendiculars and she had a gross tonnage of 20,904, while her beam of 75.3 feet was the biggest ever put into a merchantman. But her speed was moderate, quadruple-expansion engines giving her seventeen knots at sea. She had a huge carrying capacity for cargo, in addition to accommodation for 347 first-class, 160 second-class and no less than 2,352 third-class passengers. Before she was in commission her owners were so sure of the success of their venture that a still bigger consort was under construction, the class eventually growing into the famous "Big Four."

To make room for the new Lloyd ship, which was to be named

*Kaiser Wilhelm II,* the existing ship of that name, which was on the Mediterranean-New York service, was renamed *Hohenzollern,* a name which had only just been dropped out of the company's list.

It is interesting to note, as an instance of the concern which the German Imperial House felt for the prosperity of German shipping, that Prince Henry of Prussia, going across to New York for the launching of the Kaiser's racing yacht *Meteor,* traveled out by the *Kronprinz Wilhelm* and home by a Hamburg American steamer, although the Imperial yacht *Hohenzollern* went out at the same time to accommodate him during his stay in the United States.

Among the smaller new ships the most interesting was perhaps the *Haverford,* 11,500 tons, which was built for the International Navigation Company's British flag fleet. On the Canadian trade there was the beginning of a new series for Elder Dempster and Company, which had been relieved of the competition of McIver's Beaver Line in 1900 but which was still up against a very stiff proposition in the Allan Line. They did not build anything to approach the *Tunisian,* but the *Lake Michigan,* practically a sister of the *Lake Erie* of 1899, and the *Lake Manitoba,* with a gross tonnage of 8,852 and a speed of 13 knots, were useful vessels in their way. For the secondary emigrant and cargo service they stuck to their old nomenclature beginning with the initial M, building the *Mount Temple* of 7,656 tons, 12 knots, in 1901, and following her immediately by the smaller *Melville,* 4,439 tons.

Apart from this new tonnage the main interest on the Canadian trade lay in the decision of the Allan Line to oblige the Canadian Government by changing its winter terminal from Portland, Maine, to St. John's, New Brunswick.

All this new tonnage was to a certain extent balanced by disappearances from the list, many old favorites going. Among the best known of the ships which went to the scrappers in 1901 was the old Cunard *Servia* and one or two of the smaller units on the Boston run.

The direct West Indian service of the Hamburg American Line had been producing good results, but in 1901 they decided to buy the Atlas Line which for thirty years had been running under the British flag from New York to the West Indies. The purchase included seven steamers of about fifteen thousand tons gross which had worked up a big freight and passenger business and which the Hamburg American used for feeding its regular New York service. In the following year it came to an agreement with the Deutsche Levante Line by which each company supplied two steamers for a direct fast cargo service from New York to the Eastern Mediterranean. The results were disappointing and the scheme was dropped in 1904.

The history of the year 1902 was overshadowed in every respect by the foundation of the International Mercantile Marine, Pierpoint Morgan's gigantic international shipping trust. As a matter of fact, it had started operations in the previous year by the purchase of the Leyland Line, a purchase which included the recently acquired West Indian and Pacific Steamship Company, but although their purchase caused considerable alarm in Britain it was nothing to the excitement that arose when the full details of Morgan's idea were realized.

Mr. W. J. Pirrie, the head of Messrs. Harland and Wolff, the builders, and afterwards Lord Pirrie, was really behind the move although it had already been in the mind of the Hamburg American directors in the early nineties. In the excitement caused by the news it was generally believed that the idea was to Americanize the British companies and so get control of the Atlantic service, but this was strenuously denied by all concerned, and looking back from this period it is quite reasonable to accept their denials. Mr. Pirrie believed that it would avert an international struggle which would be greatly to the detriment of all parties and which might spread to anything, and he took the opportunity to deny flatly the statement that his first move was to save the money which the White Star Line owed him for new construction. It was a statement very generally believed at the time, but the fact is that not a penny was owing in that way.

It is worth noting particularly that the original scheme for the combine did not include the transfer of any companies to the American flag; the promoters were fully aware of the expense attached to the Stars and Stripes and wished to keep the European nature of the concern unimpaired.

From the business point of view that was one of the shrewdest items of the whole business, for it was obviously a gross mistake to start such a scheme during a serious shipping slump; the concern was heavily over-capitalized from the first, and they started by putting a number of new ships on an already overstocked market.

The actual trust was started in 1902 when the International Navigation Company, the successor to the old Inman Line, changed its name to the International Mercantile Marine Company and increased its capital from fifteen million to one hundred twenty million dollars. Half of this was in ordinary shares whose dividend was limited to ten per cent. while debentures existed and the other half in six per cent. cumulative preference stock. In addition the corporation had the authority to issue seventy-five million dollars' worth of four and a half per cent. debentures. Mr. C. A. Griscom, already one of the most important figures in American shipping, was the president of the new concern but his identity was generally forgotten in that of Mr. Pierpont Morgan.

The most important purchases were the whole of the share capital of the White Star Line, together with the business of Ismay, Imrie and Company, their managers, the whole of the share capital of the Dominion Line with the business of Richards, Mills and Company, the whole of the share capital of the Atlantic Transport Line and the great majority of the shares of the Leyland. With the Leyland purchase went the West India and Pacific, as already mentioned, and also the Wilson-Furness-Leyland connection; the Atlantic Transport bought the National Line and the White Star the Shaw, Savill and Albion Company to New Zealand. In addition the company obtained control of the Red Star Line and the Holland American Line.

Albert Ballin of the Hamburg American fully realized the difference that this combine would make to the North Atlantic trade and came to a ten-year agreement with its promoters. This provided for a regulated interchange of shares and certain communities of interest, Ballin at the same time undertaking to persuade the North German Lloyd to come to certain agreements. The late Emperor Wilhelm II took a very keen interest in these negotiations.

At the same time Ballin soon made his power felt, for he bitterly criticized some of the personnel of the combine who had no real shipping experience and he stuck to his guns until he had secured changes.

All the British interests secured at least a very large proportion of their purchase money in cash, and the price which the combine was willing to give was a generous one.

One of the problems which had to be faced in the transfer of the White Star Line was the status of the ships as British auxiliary cruisers, for the agreement which the country had made with the Admiralty still had some years to run and could not be broken lightly. There were numerous questions in Parliament as to how the ships were to be run now that the ownership of the White Star shares had been transferred to American hands, but it was pointed out that it was only the shares that had been sold and not the ships. There was nothing which could legally prevent the sale of such stock, but the tonnage was another matter and its continued British nationality was arranged satisfactorily.

The alarm at the formation of the International Mercantile Marine was felt not only among the British public but also by the Government. It was at first thought that the Cunard Line would be absorbed into the Trust, in fact at one time there was every possibility of that happening, but for a variety of reasons all chance disappeared and the British Government decided to make assurance doubly sure by a strict agreement with the company which was to remain in force for twenty years.

Under this agreement the Cunard Company pledged itself to remain a purely British undertaking and not to permit the management to be in the hands of, or the vessels of the company to be held by, any other than British subjects. The Cunard Company agreed to build two large steamers of twenty-four or twenty-five knots speed for the Atlantic service, and during the life of the agreement to hold these ships and all its other tonnage at the disposal of the Government in any national emergency, the Government having the right to charter or purchase all or any such ships at agreed rates. The company also undertook not to raise freights unduly or to give any preferential rates to foreigners.

With reference to the two ships which were to be built, the Govenment agreed to lend the necessary money at two and three quarters per cent. per annum interest, having a charge on the assets of the line as security, and the company agreed to repay the loan by twenty annual installments.

At the same time the existing Admiralty subsidy to the Cunard Line for the use of its ships as auxiliary cruisers was cancelled and replaced by a subsidy of one hundred fifty thousand pounds for twenty years from the completion of the new ships, it being agreed that this subsidy should be reduced by sixty thousand pounds per annum in the event of one of the ships being lost.

There was another agreement in 1902 between the British Post-office and the Cunard Line, providing for an annual mail subsidy of sixty-eight thousand pounds, from which was deducted the receipts from sea postage, but although this was quite an important agreement it was completely lost sight of in the importance of the other treaty.

Having completed its arrangements with the Government, the Cunard Line set about designing the two ships that it was proposed to build and drew out the lines in considerable detail. Their architects favored a triple-screw ship and copies of the design and the specification were sent to John Brown and Company of Clydebank, the Fairfield Shipbuilding Company, Swan, Hunter and Wigham Richardson on the Tyne, and Vickers, Sons and Maxim at Barrow in Furness. At the same time Mr. R. E. Froude constructed models of the proposed ships and carried out experiments in the Haslar naval tank.

Both builders and scientists were asked to criticize the design and specifications before them and the result of their criticism was that it was decided to build the new ships as quadruple-screw instead of triple, the other main features of their design being left as the owners had suggested. At the same time the beam was very considerably increased and this made it impossible for the Vickers or Fairfield yards to undertake the contract without going to very much more expense for improving their slipways than they were inclined to face.

Apart from the matter of the International Mercantile Marine and the Cunard agreement, the next most important item of the year was the launching of the North German Lloyd Liner *Kaiser Wilhelm II* in the presence of the Kaiser, who always took a keen interest in her. Her gross tonnage was 19,360, bigger than the *Oceanic* and second only to that of the *Celtic,* and the Vulcan yard worked into her design several improvements on that of her predecessor. She was a twin-screw ship but her propellers were driven by four quadruple-expansion engines of ten thousand horse power each, two being coupled to each shaft which, to stand the tremendous strain, were made of the finest nickel steel. For added safety each engine was in a separate water-tight compartment.

From the very beginning the German Navy intended to use her as an auxiliary cruiser should opportunity arise, and mountings were fitted for eight 5.9 and four 4.7-inch guns in addition to many smaller quick-firers and machine guns, while she was strengthened to carry two torpedo-dropping steam launches. Her predecessors of the line had done so well in the matter of the Blue Ribbon that the excitement of her construction started as soon as she was launched, although she was not actually in service until the spring of 1903.

In order to pay for this new tonnage the North German Lloyd suggested raising debentures for the value of ten million marks, which were snapped up immediately.

The Hamburg American Line had rather ambitious plans under way at that time to counter the sensation made by the Lloyd ships, but Ballin fully realized the extent of the post-war slump and immediately trimmed his sails. Some of the contracts were held up, including that of the ship which afterwards became famous as the *Amerika,* but it was decided to carry on with the *Moltke* and *Blucher,* ships of a new type which proved useful on the North Atlantic. They were twin-screw ships with a gross tonnage of round about 12,300 and a speed of 16½ knots.

At the same time the Hapag decided that it was well worth its while to spend a lot of money on their terminal facilities in Germany. In the early eighties the board which succeeded the Godeffroy administration had been content to drop into second place because the conditions of the Elbe made it difficult to navigate big steamers up to Cuxhaven, and the State was very slack indeed in effecting any sort of improvement. Albert Ballin was not inclined to take any such view when he got control and immediately worked on the improvement of the river and the establishment of a liner harbor at Cuxhaven, which was finished in 1902. It cost the Hamburg American Company a good deal, but he cajoled and bullied the State and the Prussian State Railways into spending a great deal more. Its completion permitted a greatly improved service to be established, while port time and expenses were reduced by the dredging work and by the excellent dock buildings that were erected by the State and leased by the Hamburg American Line. The *Graf Waldersee* opened the new port.

For the British companies the most interesting ship that was actually put into service was the Anchor Liner *Columbia,* which was destined to be the first of a new series for the New York run, although she never had a sister. A fine-looking, three-funneled ship, she had a tonnage of eighty-four hundred and a speed of eighteen and one-half knots, and in spite of her comparatively small size she was always a very popular passenger carrier on the Clyde run. Her advent meant the dropping of the famous *City of Rome* from the Anchor service and she went across to Germany to be scrapped, where she gave trouble right up to the end by foundering in the scrapping berth.

The year was also most unfortunate for accidents, particularly in the spring when an extraordinary spell of bad weather was experienced. The old Allan liner *Grecian* was wrecked on the Canadian coast, all hands being saved, and their new steamer *Huronian,* which had only been purchased on the stocks a few months before, disappeared without a trace. She was the only Allan liner that ever foundered. The Red Star liner *Waesland,* formerly the Cunard *Russia,* was lost in collision with a Houston liner and although she was off the Atlantic service it is interesting to note that the famous first *City of Paris,* then the French steamer *Tonquin,* was also sunk in collision.

Serious, but not fatal to the ship, was the famous incident of the Cunard *Etruria* breaking her shaft in bad weather in mid-Atlantic. She was picked up by the Leyland cargo steamer *William Cliff,* and although the distance was only seven hundred and eighty miles it took her ten days to tow the big ship into the Azores through foul weather. The *Etruria* and her cargo was valued at two hundred and fifteen thousand pounds and for the work the owners, captain and crew of the *William Cliff* were rewarded with eleven thousand pounds salvage, not a particularly generous reward which gave rise to a lot of comment at the time.

The company immediately chartered a Royal Mail Steam Packet Company South American liner to pick up the mails and passengers at the Azores and did all that they possibly could to reduce the inconvenience both to the post-office and to the passengers. In spite of this, there was a good deal of criticism both in Parliament and the Press, criticism which was silenced at once when they made the first announcement concerning their intention to build two thirty thousand-tonners which were eventually the *Lusitania* and *Mauretania*.

In 1903 the International Mercantile Marine made a bad beginning which gave an excellent handle to the English opponents of their combine. The American liner *St. Louis* was allowed to sail with very leaky boilers, a decision which caused a good deal of friction within the company, with the result that she averaged only nine and three-quarter knots from Southampton to New York, getting on to the overdue market and twenty guineas per cent. being paid for her reinsurance. Boiled down, it was a matter of bad judgment in deciding the relative claims of a reasonable passage and an unbroken sailing list, but in the feeling of that time it was given considerable importance.

Apart from this, the competition between the units of the International Mercantile Marine and the Cunard became rather more keen and the year was an exciting one. The combine scored the first point when the *Cedric* was finished at the beginning of 1903, a considerable improvement on the *Celtic* with a gross tonnage of 21,035, the same speed of 16 knots and accommodation for nearly 3,000 passengers. The White Star Company was then in a position to improve the Friday sailing, which until then had been a glorified cargo service, and the Cunard argued that this was against the contract agreement and made it one of the reasons for their withdrawal from the pool.

On one of the *Cedric's* early voyages a rumor gained circulation that she had been sunk in collision with the Lamport and Holt liner *Titian* in mid-Atlantic, a rumor without the first vestige of truth.

The next addition to the White Star fleet was the *Arabic* which was originally to have been the Atlantic Transport *Minnewaska* but which was transferred to the White Star Line on the stocks at Belfast. She had a gross tonnage of 15,801 and a speed of 16 knots with quadruple engines, so that she fitted in with the White Star secondary service excellently when she had been considerably altered and accommodation provided for all three classes of passengers. It may be mentioned that her first commander was the well-known Captain (later Sir) Bertram F. Hayes, who was then comparatively junior on the list of the company's commanders.

Deprived of the *Minnewaska,* the Atlantic Transport laid down two fifteen thousand-ton ships which are seldom associated with their fleet and which were provisionally named *Minnekahda* and *Minnelora.* They were fine ships, a development of the earlier trio, but before they were ready for sea the Pacific Mail Line made their owners a very advantageous offer and transferred them to their transpacific service, under the names of *Manchuria* and *Mongolia.* They were very successful on that run, but curiously enough, when the Pacific Mail was forced out of business in 1915, they were returned to the ownership for which they were originally designed, keeping the names under which they had been known in the East.

With their new tonnage the White Star were able to discharge some of the older ships on their list which had come in for a good deal of criticism on account of their age. The famous old *Britannic* and *Germanic* certainly were old for mail service and they gave a handle to the critics of the company. The *Britannic* was sent to Belfast to see whether it would not be worth while to fit her with new engines and boilers, but the verdict was against the expense and she went across to Germany to be broken up. The *Germanic,* on the other hand, was considered worthy of a certain amount of modernization and was transferred to the Dominion Line as the *Ottawa* for the steerage trade only. In 1911 she was sold to the Turkish Government as a transport and under the name of *Gul Djemal* served against the British in the Dardanelles Expedition, was torpedoed and salved, and is still in existence in Turkish waters, although apparently she seldom puts to sea these days.

Against the White Star ship the Cunard ordered the big new vessels for the direct New York service, two rather smaller, and completed the *Carpathia* for the intermediate service. A ship of 13,555 tons, she had a speed of 15 knots. Nowadays she would be called a cabin liner, but that term had not yet been coined and her passenger accommodation was labeled as two hundred second-class and about sixteen hundred third-class.

She was a ship associated principally with the Mediterranean trade where things were moving rapidly. The Austrians entered the transatlantic passenger business, principally emigrant, with the Unione Austriaca, a company formed out of the old Austro-Americana, and for some time after generally known under that name. This company was formed by an amalgamation, carried out in 1900 between the Cosulich and Schenker companies, both small shipowners who started business in the nineties. They were only interested in the cargo business, but when the British lines began to get enthusiastic on the Trieste run, they began to fear that they would lose this business and accordingly obtained the backing of the Hamburg American and North German Lloyd lines to start a passenger trade. This suited the German companies excellently, for there was considerable Austrian prejudice at that period against sending all their emigrants through German ports and they saw fully the advantage of having an interest under the Austrian flag.

The company immediately built improved tonnage, beginning in 1905 with the *Francesca* and *Sophia Hohenberg,* ships of about 5,500 tons with a speed of about 14 knots and the 13-knot *Carolina* (4,713 tons), and *Irene* and *Virginia* (about 3,500 tons). So well did they do that in 1905 the whole fleet of the Cosulich Bros. Company, in addition to some other ships, were transferred to their management.

The Cunard countered this move by strengthening the Mediterranean fleet and working for an agreement with the Hungarian Government which was signed next year and which put them in a very strong position. Their intentions were obvious and the German interests did their best to check them by boycotting the Cunard Line more strictly still under their system of control stations, which had really been formed with this idea in view in spite of the pretense of cholera. That, coupled with the grievance against the International Mercantile Marine already mentioned, was the reason of the Cunard withdrawing from the Atlantic pool.

The rate war which followed this withdrawal led to the collapse of several small emigrant companies who were not strong enough to stand the strain. The most important of these was the Puritan Line, maintained by T. Ronaldson and Company, on a service between Baltimore, Boston and Antwerp. Their ships varied from twenty-nine hundred to four thousand tons and included the *Eng-*

*lish King, Saxon King, Cambrian King, Storm King,* and *Fitzclarence.*

In the meantime the Cunard Company started a new Mediterranean service to Boston by the *Carpathia* and the *Aurania* which had been maintaining an extra Tuesday service from Liverpool to New York. The International Mercantile Marine took this up at once, for they had been fostering the Mediterranean service under the Dominion Line flag.

In order to give their service added prestige it was transferred from the Dominion to the White Star Line, and a general shuffle of units took place. The *New England* became the *Romanic,* the *Commonwealth* the *Canopic,* and the *Mayflower* the *Cretic,* while the new 15,378-ton *Columbus* which was just on service was renamed the *Republic.* At the same time the White Star service between Liverpool and Boston was strengthened by the *Cymric* and the Dominion Liner *Canada.*

The result of this was a fierce rate war in the steerage business but the Cunard stuck to its guns and although the rate agreement was restored two years afterwards the company remained outside the pool and continued the Fiume service which was so obnoxious to the Germans.

On the main lines two very important changes were made in the ports of call. One was by the American Line, which was the first company to realize the paramount importance of the French trade and the possibility of working it economically with the English run. After a good deal of discussion with the American Post-office, permission was obtained for the east-bound mail steamers to land their mails at Plymouth — where the Great Western Railway was sufficiently keen on the business to run a wonderful train service to London — and then go across to Cherbourg for the convenience of their Continental passengers before they went to Southampton, which remained the terminal port.

This was a very important change and, when official permission had been obtained to drop the Plymouth call a little later, it became the regular run for the main Atlantic service. The White Star Line was the first to copy the American Line example in 1907, when they moved their Wednesday mail service from Liverpool to Southampton.

At about the same time that the change was made, the American Line sailing from New York was altered from Wednesday to Saturday, and the placing of an extra steamer on the main line permitted a more regular and far more satisfactory service.

The other change of port concerned the use of Dover by the Germans. The Hamburg American Company started the practice and the North German Lloyd followed them immediately. Huge naval works were in progress at Dover at that time, with the aim of bottling up the North Sea, and there were not a few who maintained that the German companies' sudden enthusiasm for the Kentish port had a rather sinister foundation. It must be admitted that, although ideally situated from a geographical point of view, the port left a good deal to be desired for the purposes of big liners.

The whole outlook on the Canadian trade had been changed during the year. There had been a sensation when the Elder Dempster Line took over the old Beaver concern in 1898, but that was not to be compared with the sensation that was caused by the announcement early in 1903 that they had sold all their Canadian interests to the Canadian Pacific Railway, which had long been rumored to have been casting glances at the Atlantic business. Only one or two of the older ships were excluded from the deal, which covered all the business that Elder Dempster's had built up and fourteen ships.

The price paid was £1,417,500 and as the ships themselves were insured at Lloyd's for £1,120,000, to say nothing of the goodwill, the price could not be described as excessive.

At that time the Canadian trade was doing far better than the American, but there was keen competition on the Atlantic end of it. The principal companies concerned were the old Allan Line and the Dominion branch of the International Mercantile Marine group, but numerous other companies were running as well. Into this rivalry the Canadian Pacific plunged at once and with their colossal resources and unique opportunities of placing settlers on the land, their advent naturally upset everything.

The Allan Line had already been finding new tonnage to cope with the new ships which the Beaver Line had acquired, but this purchase by the Canadian Pacific altered their plans considerably. Two big ships were going to be built as an improvement on the

Tunisian, but the competition of the Canadian Pacific called for something very special.

Accordingly the company, which was very much interested in the experiments carried out by the Honorable C. A. Parsons with the marine steam turbine, invited him to design turbine engines for the two new ships which they had tentatively ordered of Workman Clark of Belfast. He was quite ready and willing but under the new conditions the contract proved rather more than Workman Clark cared to tackle. As a result they built one of them, the *Victorian,* while the contract for the *Virginian* was transferred to Messrs. Stephen of Linthouse.

As regards their hulls, they were very similar to the *Tunisian* class but had three screws instead of two as the development of the turbine engine at that time forced the builders into multiple small propellers. Their gross tonnage was practically eleven thousand and although the mail contract provided for a maximum speed of sixteen knots, these ships were to be able to steam eighteen at sea, in addition to having a good cargo capacity with accommodation for four hundred and seventy first-class, two hundred and forty second-class and nearly one thousand third-class passengers. When they were tried the *Victorian* averaged 19 knots and the *Virginia* with slight alterations 19.8, with a maximum of 20.

The Canadian Pacific were making their plans more slowly so that they did not interfere with the Allan Line signing a new short-time mail contract with the Canadian Government which was dated January, 1904, and which provided for a variable subsidy, two thousand pounds for each round voyage by the new ships, one thousand pounds by the *Bavarian* and *Tunisian* and five hundred pounds for the *Ionian, Sicilian* and *Pretorian.* Several of the old ships of the Allan fleet were disposed of.

When these plans were published it was obvious that the time had not been wasted. The two new ships were ordered of the Fairfield yard and although they did not follow the Allan lead in the matter of turbine engines they were up to date in every other particular. The *Empress of Ireland* and *Empress of Britain* were not designed without a good deal of discussion, not only in the matter of machinery but also whether they should be designed to run right up the Saint Lawrence to Montreal or finish their journey at Quebec. This led to considerable delay in their construction so that they were not definitely ordered until December, 1904, and the yard was expected to make up for lost time, which they did very successfully.

First-class seaworthiness was a great consideration, and this condition was also fully satisfied. They had a gross tonnage of about 14,200 apiece and their quadruple-expansion engines were intended to give them a maximum speed of 20 knots, while they carried 310 first-class, 470 second-class and 770 third-class passengers in quarters that were very considerably in advance of anything that their rivals had designed.

The *Empress of Britain* was rather the faster of the two, and on her second voyage she captured the Canadian record from the Allan liner *Virginian* with a time of five days twelve hours fifteen minutes from Father Point to Liverpool. Being the winter season she established a record between Liverpool and Halifax of five days eight hours eighteen minutes and was always clipping a few odd minutes off her own best.

Both ships are extraordinarily popular in the service and did a lot towards establishing the Canadian Pacific firmly on the Atlantic run. The *Empress of Ireland* was sunk in tragic circumstances shortly before the World War through the fault of the Norwegian cargo steamer *Storstad,* but the *Empress of Britain* had many years of successful service before her.

During 1904 the competition between the Cunard Line and the International Mercantile Marine went on very much according to the lines laid down in the previous year. Otherwise shipping conditions were not such as would tempt the owners to build new tonnage or to go in for expensive experiments, particularly when the Allan turbine ships were afloat and the Cunard Line had already announced its intention of carrying the principle into bigger ships.

As far as the Cunard Line was concerned, pending the completion of this tonnage, the greatest interest centered around the Mediterranean service. They contrived to reach an emigration agreement with the Hungarian Government, by which the fare between Fiume and New York was fixed at seven pounds ten shillings and sixpence, including the board of the immigrants on shore pending the sailing of the ship, as long as the period did not exceed three days. On their part the Hungarian Government guaranteed thirty thousand immigrants per annum, and agreed to pay the company a forfeit of four guineas a head for any deficit that there might be. In order to cover this service the Cunard Company bought the new British India liner *Yamuna,* which was completing on the Northeast Coast, and rechristened her *Slavonia.* She was a ship of 8,831 tons with a speed of rather more than 14 knots and to run alongside her they bought a 9,850-ton ship which was on the stocks for Sir Christopher Furness and renamed her *Pannonia.*

On the part of the International Mercantile Marine the developments were principally in the matter of organization and personnel, largely owing to the attitude of Herr Ballin already mentioned. Mr. Clement A. Griscom, who had been the original president, became Chairman of the Board and Mr. J. Bruce Ismay, the head of the White Star Line, the president and active head. This shuffling of offices caused a good deal of comment in America and it was remarked that the English shipping men had their own property again, plus the cash paid to them by the syndicate, plus the property of the American Lines. This was rather an extreme view, but no more extreme than many of those expressed in Britain.

Meanwhile the war between Russia and Japan in the East was having a big influence on German shipping. When the two countries came to grips, British sympathy was so strongly with the Japanese that the Russians had little inclination to charter tonnage under the Red Ensign for the victualing of their fleet, and when it was decided to send Rozhdestvensky with the Baltic Fleet out to the Far East, their demand for colliers was colossal. They turned to the Hamburg American Line for help and a large number of that line's cargo steamers were withdrawn from regular service to coal the Russian fleet while others were chartered from various flags. Eighty ships in all were used in this service and although the risks were large, the profits were enormous and were used to fight the Cunard Line in the rate war which followed the latter company's withdrawal from the pool on account of the Hungarian service.

Part of these profits were, however, devoted to the construction of the *Amerika* and her slightly improved sister *Kaiserin Auguste Victoria,* although it was necessary to raise a small debenture and slightly increase the capital to complete them. At the same time a bigger ship of the same class, which was to have had a gross tonnage of 29,700, was ordered, but it was finally decided to abandon the idea and the contract was cancelled.

Not only did the Russian Navy charter all the available Hapag cargo tonnage but they bought some of the older passenger liners at a price that was eminently satisfactory to the Germans. Three of the older express liners were included in this sale, the well-known *Furst Bismarck, Columbia* and *Auguste Victoria,* ships which were long past their prime and which were really out-of-date for the Atlantic service, the price that they fetched being very much more than the company would have secured in ordinary circumstances. In addition, two of the older ships of the "P" class went and ten other vessels.

The *Furst Bismarck* served as the *Don* and survived. Some years afterwards she was sold to the Austrian Navy as the depot ship *GAA* and finished her days after the Great War as the emigrant carrier *San Giusto. Auguste Victoria* became *Kuban* and *Columbia* was renamed *Terek,* both being scrapped in 1907.

The North German Lloyd disposed of the *Kaiserin Maria Theresa* (ex-*Spree*) which as the *Ural* was sunk by the Japanese, and the *Lahn,* which was renamed *Russ* and was converted into a captive balloon carrier but saw no active service.

One very interesting, although not very large ship was added to the Hamburg American fleet, which had found the *Prinzessin Victoria Louise* so successful on the cruising business that they determined to build another ship, although not quite so ambitious. The *Meteor,* which was built in 1904, was rather less luxurious than her predecessor and had a tonnage of under four thousand but was far more economical and a very much better business proposition. More important was the *Baltic,* the third ship of the big White Star series. Minor improvements in her design and greater earning ability brought her tonnage up to nearly twenty-four thousand; otherwise she was identical with the *Celtic* and *Cedric.*

It was the Hamburg American Line that made the running next year, for they progressed with the suspended program and added several interesting new ships to their fleet. The first of these was the *Amerika,* built by Harland and Wolff and in every respect an adaptation of the White Star *Celtic* which was built by the same firm, even to the possession of the same rig of four masts and two funnels. But she was bigger than the *Celtic* — about 22,600 tons gross — faster, with a speed of 17½ knots, and very much more luxurious.

It was in the *Amerika* that the Hapag Company tried the experiment of tickling the taste of the luxury traveler by installing an *à la carte* restaurant under the management of the Carlton Hotel. If they chose to have their meals in this restaurant, travelers could save three guineas on the fare on every voyage, but it was purely a concession to those who regarded an ocean voyage as an opportunity to waste money, for the sum saved was more than spent.

Slightly bigger than the *Amerika,* but designed on the same lines, was the *Kaiserin Auguste Victoria,* built by the Vulcan yard at Stettin. The main difference between the two ships was that the German-built vessel had a gross tonnage of 24,500, very largely a matter of policy. At the same time the Fairfield yard on the Clyde launched the *Furst Bismarck,* 8,330 tons and 14½ knots, which began a new class that was intended to prove itself useful on other services beside the Atlantic, particularly the Far Eastern and the Australian.

Apart from the ships built, a particularly interesting acquisition of the Hamburg American Line was the old Union Castle liner *Scot* of 1891, a particularly beautiful clipper-stemmed steamer which still held the Cape record. The company bought her and rechristened her *Oceana,* intending her principally for a new service across the Mediterranean during the season and as an intermediate Atlantic steamer or cruising yacht when the opportunity arose. The Hamburg American Company, however, learned the same lesson that her original owners had done, that although she was a particularly beautiful ship and remarkable in her own way, she was a terrible coal eater and at the first opportunity they sold her to the Spanish Compañía Trasatlantica.

Naturally enough, these acquisitions by the German firms for which Southampton had a natural attraction gave those in charge of the Hampshire port plenty to think about and they lost no time in preparing for the transatlantic traffic. The Trafalgar dry dock, capable of taking any Atlantic liner afloat at that time, was completed in 1905 and at the same time they pressed forward their dredging program. When the American liners first came to the port in 1893 they could only just scrape their way over the mud, but twelve years later there was a twenty-eight foot minimum and the Southampton Harbor Board was not at all satisfied with that.

On the British side the great event of the year was the advent of the Cunard *Carmania* and *Caronia* from John Brown's yard on the Clyde. They were roughly sister ships with a gross tonnage of about nineteen thousand five hundred, but whereas the *Carmania* was a triple-screw ship driven by turbines, the *Caronia* was a twin-screw vessel with more normal quadruple-expansion engines. It was an opportunity to test the turbine drive for big Atlantic liners before the Cunard Company finally came to the decision to fit it into the new record breakers and it proved itself phenomenally successful. The guaranteed trial speed of the two ships was 19 knots, but the turbine-engined *Carmania* averaged 20.4 knots with a dirty hull, while the best that the *Caronia* could do on trial was a mean of 19.7 soon after she had been scraped and painted. As they were given identical boilers this increased speed indicated a very big economy on the part of the turbine engine.

When these ships were completed they permitted the Cunard Line to advertise an extra sailing from Liverpool every other Thursday during the summer.

Naturally enough, the Line gained great kudos from these fine new ships, but simultaneously they suffered a very heavy loss by the death of Lord Inverclyde at the very early age of forty-four. His father, who had been head of the Cunard Line, died in 1901 and was succeeded by Mr. David Jardine as the new Lord Inverclyde; although he was already on the Cunard Board, he was not considered to have had sufficient experience to take the helm of the company. Twelve months afterwards, however, Mr. Jardine retired and for three very eventful years Lord Inverclyde took charge, the successful negotiations with the Government and the steadily increased prestige of the Cunard Line being sufficient testimony to his services.

Mr. William Watson succeeded him as chairman, while Sir William Forwood, one of the best known Liverpool shipowners, was appointed deputy chairman.

While the Cunard Line was thus showing its practical interest in turbine engines it is only natural that Albert Ballin of the Hamburg American should show his usual determination to keep abreast of things. During 1905 his company took over the little steamer *Kaiser,* designed for the Heligoland service, from the Nordsee Company on the stocks, with the idea of trying the new engines thoroughly before risking their installation in big ships. This was on a par with the Cunard Line policy, for they tried the *Lusitania* engines in a Clyde passenger steamer before they took the plunge. The *Kaiser* was an interesting little ship in her way and for some time she was chartered to the German Navy so that they also might get the benefit of her experience.

The White Star Line was not idle. In September Mr. Bruce Ismay attempted to come to a new ten-year agreement with the American Post-office. When it appeared that everything was satisfactorily arranged, the question of ships flying the American flag became predominant and, the British Admiralty persisting in its refusal to permit the transfer of the White Star ships under their auxiliary cruiser agreement, the contract with the American Line was strengthened instead. The condition maintained that the ships should have a sea speed of twenty knots with a gross tonnage of not less than eight thousand. They were to be designed specially for conversion into auxiliary cruisers in war time and they were to carry and train one American-born boy under twenty-one years of age for every thousand tons gross of the ship's register. In return for this, the mail subsidy was fixed at four dollars per mile for the shortest practicable eastward voyage, later changed to one hundred and fifty thousand pounds per annum.

This agreement would have given satisfaction to the people who were making a big effort to restore the American flag to its position on the North Atlantic, but business considerations made it impossible to overlook the wonderful speed of the Cunard *Lusitania* and *Mauretania* and arrangements were altered in 1907 to give them their full share of the European mail whose rapid delivery was of the greatest importance to American business.

But in the meantime efforts really were made to speed up mails and the arrangement for sorting them at sea which had been fixed for the German liners was extended to the British, beginning with the *Baltic* which sailed in May, 1905. The arrangements for the coöperation of the British and American post-office officials was very similar to that already arrived at with the Germans, and there was no difficulty in finding volunteers who were willing to take up the ocean service in return for their ordinary post-office wages, with their rations and quarters on board ship and an extra six pounds per round voyage in addition to half a guinea for every day they spent ashore in New York. The British Government's share in this arrangement came to about six thousand pounds a year. But they regarded it as being well worth it.

Within a couple of months of this agreement being reached, the North German Lloyd and Hamburg American lines gave notice that they were going to terminate the sea-sorting agreement because it was not worth their while. The convenience of the post-office was so great that the American Government sent officials across to Germany to try and find a working agreement that would be satisfactory, the companies agreeing to carry on in the meantime.

Among the minor companies the Allan Line was forced out of the New York service, which it had secured by the purchase of the Hill and State lines, by the impossibility of getting their pier lease renewed. The abandonment was to be only temporary, but it proved permanent owing to the difficulty of getting another pier, and perhaps it was lucky for the company, for it enabled the directors to concentrate their energies on the very necessary business of meeting the Canadian Pacific competitions on the St. Lawrence run to which they really belonged, although they spent a good deal of effort in improving their minor Boston service.

The Donaldson Line, which was interested in the cargo business both to the St. Lawrence and to South America, entered the cabin passenger trade on the former route in 1905 with the *Athenia,* built for them in the previous year by Vickers Sons and Maxim. She had a gross tonnage of 7,830, later increased by nearly a thousand, and was followed after an interval by the *Cassandra.*

The year 1905 cannot be passed without mentioning the fact that an old friend very nearly came back to the Atlantic service. When the American Line took over the old Inman interest the famous

*City of Chester* became the *Chester* as a reserve ship and during the Spanish-American War she was sold to the United States Government as the transport *Sedgwick.* In 1904 she was sold to ship breakers, but in the following year she was resold to an Italian syndicate which proposed to run her on a new service from the Mediterranean to New York. As she would have been in competition with the new Cunarders it was perhaps lucky for the backers of the scheme that the United States authorities refused to license her as a passenger carrier and the whole idea fell through.

Nineteen six was noteworthy for very remarkable new tonnage. The Cunard liner *Lusitania* was launched in June by John Browns of Clydebank and the *Mauretania* three months later by Swan, Hunter and Wigham Richardson on the Tyne. Considering that the contracts for these ships had not been placed until May, 1905, and considering their then unprecedented size, this was remarkably smart work on the part of the builders. For the White Star Line the *Adriatic,* over 24,500 tons but otherwise a unit of the *Celtic* class, was launched at Belfast and completed the four ships which were necessary for the plans of the company. The Hamburg American Line were able to acquire two very useful ships for their service by the discovery that Furness, Withy and Company had apparently no use for their sister ships *Servian* and *Scotian,* ships of over eighteen thousand tons which had been launched by Harland and Wolff in 1903 and then laid aside. The work of completion had not proceeded so far that the Hamburg American Line could not easily adapt them to their own uses, and the fact that they were built according to Harland and Wolff design, as in the case of the "P" ships already owned by the Hamburg American, made very little conversion necessary before they were fit to take their place in the Hamburg American service.

They were intended to be big cargo carriers as well as passenger transports and to ensure a quick turn round at the terminal ports the Hamburg American fitted them with no less than six masts, making them easily distinguishable from any other ship on the Atlantic. The original idea was to christen the *Servian, Chicago,* and the *Scotian, Berlin,* but before they were in service this idea was altered and they became *President Grant* and *President Lincoln* respectively. Their speed of fourteen and one half knots was low for the regular Atlantic service but it was amply sufficient to let them run alongside the ships of the "P" class. The *President Lincoln* was sunk during the War but the *President Grant* is at the time of writing, the *Republic* of the United States Lines, made to look curiously long by the suppression of her third and fourth masts.

Huge numbers of Russians were showing a keen desire to emigrate to the New World, and as the war with Japan had shown the Russian Admiralty what a very bad bargain they had got by their heavy subsidies to the Volunteer Fleet, plans were made to put the big ships in that service on to some paying run and the idea of sailing them from Odessa to New York was revived. It had been proposed several years before but the war with Japan had postponed the scheme. It would have been very much better had it prevented it altogether, for the service was a failure and eventually the big ships, which were specially designed to be converted into cruisers and prey on British commerce, were palmed off on to the Russian Navy which had the greatest difficulty in finding practical uses for them.

Of much greater importance, because its earning possibilities were not curtailed by the bureaucratic control of the Russian Volunteer Fleet, was the Russian-American Line. It started operations, principally in the cargo and emigrant business, between the Baltic ports and the United States in 1907. It was launched by the Russian East Asiatic Company, which in its turn had been started in 1900 by the Danish East Asiatic Company for a service to the Far East, having four steamers at its disposal and doing fairly well until the Russo-Japanese War broke out. The Russian public harbored very bitter feelings concerning the German emigrant trade and its control stations which gave the new concern a chance to run a popular service under the Russian flag.

They began it by transferring from their own fleet the steamers *Kina* and *Indien,* which had been built in the late eighties by Messrs. Harland and Wolff for Bibby's Burmese Line and which had formerly been known as the *Lancashire* and *Yorkshire*. These ships were renamed *Lituania* and *Estonia* and were quite useful vessels of Harland and Wolff's usual design, having a gross tonnage of 4,250 and a speed of nearly 14 knots. At the same time they ordered from Messrs. Barclay, Curle and Company on the Clyde the *Rossia,* a twin-screw ship of 8,596 tons with triple-expansion engines giving her a speed of 16 knots at her best.

The Baltic trade was essentially an emigrant one with the result that while the first- and second-class accommodation of the *Rossia* was restricted to one hundred passengers in all, she had quarters for three hundred third-class and fifteen hundred emigrants.

The competition between the Canadian Pacific and Allan companies attracted a good deal of attention to the Canadian Blue Ribbon, although it could never be of such interest as the New York. To begin with, the Allan Line had not been willing to press their turbine ships too hard — in addition to which they had their full share of the inevitable machinery troubles of the pioneer — but the approaching completion of the *Empress of Britain* and *Empress of Ireland* forced their hand and in 1906 they had let the turbine-engined *Virginian* have her head, breaking the outward record with a time of five days twenty hours forty minutes from Liverpool to Rimouski and the eastbound with a time of six days five hours from Rimouski to Liverpool. Soon afterwards, however, the *Empress of Britain* lowered this with a time of five days twelve hours fifteen seconds eastward, and in the following January with five days eight hours eighteen minutes from Liverpool to Halifax.

This loss of the record was a severe blow to the Allan Company in the first-class traffic but they still had a huge connection, particularly in Scotland. The *Corsican* was built with a tonnage of 11,419 and a speed of 17 knots to cater for the rather cheaper traffic and from a financial point of view she was a great success. The fact that she was given reciprocating engines was by many regarded as a condemnation of the turbine system; as a matter of fact, she was designed for a different service, to replace the wrecked *Bavarian.* The *Grampian* and *Hesperian* followed her in 1907, specially designed for the Glasgow run.

At the same time the Post-office arrived at a very reasonable and fair idea and let the Canadian Pacific and the Allan Line take alternate mail sailings.

Cairns, Noble and Company of Newcastle had long acted as agents for the Thomson Line from the Thames to Canada and in

1907 they purchased the service. Considering that the ships already in use were not suitable, they laid down the *Cairnrona* of 7,682 tons and the *Tortona* of 8,153, followed by the *Gerona* of over 9,000.

The British Shipowners' Company, which had maintained a very excellent although unobtrusive service since the eighties, had been gradually selling its fleet for some years past. The last unit went in 1906 and within a few days application was made to put the company into voluntary liquidation.

In 1907, as the North Atlantic appeared to be in for a minor boom, the directors of the North German Lloyd prepared a most elaborate financial scheme which would permit them to build, if not record breakers to oppose the *Lusitania* and *Mauretania* whose merits had been so fully discussed, at least first-class intermediate ships which would strengthen their hold on the paying section of the Atlantic Ferry. They also proposed to build a number of cargo steamers, the financial side of the scheme being spread over three years.

When the idea was first mooted, before any definite details were published, it was suggested that the boom that they were enjoying must inevitably be followed by a slump, and that the Lloyd were rather indiscreet in choosing such a time for such a drastic expansion. The slump came, and came unmistakably, before they could proceed with the scheme and it had to be postponed, but they had already incurred financial liabilities in starting a service between the Mediterranean and Boston in opposition to the Cunard and White Star lines and also in laying down a number of steamers. To meet these liabilities it was proposed that they should raise a loan of twenty-five million marks and to this scheme the shareholders gave their unanimous consent.

But when the figures for the first half of 1908 were published they revealed one of the greatest setbacks in the history of the company. As compared with 1907 the steerage passengers carried across the Atlantic had dropped from one hundred twenty thousand to twenty thousand and the directors had very wisely economized by reducing their sailings and laying up a number of their ships. Freights had also dropped to an alarming extent and matters were made worse by rate wars on the Mediterranean-New York route. Eventually the loss of the year was shown as no less than £892,600 and it was necessary to draw heavily on their reserve and renewal funds. Naturally the shares slumped but the company recovered marvelously and although it was not possible to declare a dividend next year the accounts were well on the right side. But the ambitious building program that might have made a very great difference during the next few years was very wisely dropped until the situation warranted its revival. Had it not been for the slump, there is no saying where the plans of the company might have ended.

Apart from this, the principal interest of the year was the decision of the White Star Line to move their main mail service down to Southampton instead of Liverpool, permitting the Cherbourg call that had been made popular by the American Line. *Majestic, Teutonic, Oceanic* and *Adriatic* were employed on this run, while the *Baltic, Cedric, Celtic* and *Arabic* started a new Thursday service from Liverpool.

The National Line, which had been suffering a heavy loss year after year, in spite of the assistance of the Atlantic Transport, now came within sight of its inevitable end and transferred the *America* and *Europe* to the Atlantic Transport as the *Memphis* and *Mobile,* leaving themselves with only two ships and worse prospects than ever.

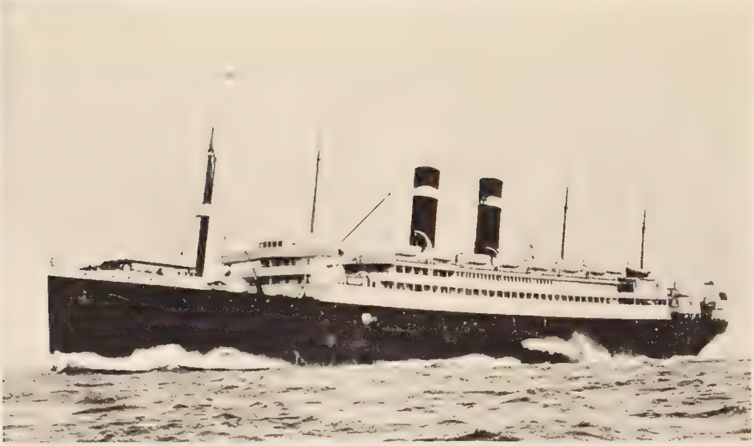
The year 1907 was another vitally important one as regards new tonnage. First of all, the White Star *Adriatic* was commissioned, completing the series, followed by the North German Lloyd *Kronprinzessin Cecilie* which took her maiden voyage in August. She was another Vulcan product, a further slight development of the *Kaiser Wilhelm II,* although the gross tonnage was only increased from 19,360 to 19,503. She was seven feet longer and a shade wider and had five decks and a shade deck against the four and a shade deck of the older ship. Her engines were precisely the same, but on the different hull it was hoped that she would have a speed of 23½ knots against the 23¼ of her sister. Her engines indicated forty-five thousand horse power and were supplied by twelve double-ended and seven single-ended boilers, working at two hundred twenty-five pounds' pressure and arranged in four entirely separate boiler rooms. She sailed on her maiden voyage in August, 1907, averaging 21.81 on the westward and 22.65 on the eastward passage, although of course she was not pressed on that occasion.

Fine ship as she was, however, she was immediately eclipsed by the commissioning of the *Lusitania* and *Mauretania,* the former in September and the latter only a few months afterwards. Although these ships had been very fully discussed there was still a certain amount of uncertainty about their precise details and naturally everybody in the shipping world eagerly devoured every item of information concerning them. The *Lusitania's* dimensions were 760 by 88 by 30 feet 4½ inches depth of hold, giving her a proportion of 8.65 beams to the length against the 9.41 of the *Kaiser Wilhelm II*. Her gross tonnage was about 32,500, her displacement 38,000 on a maximum draught of 33 feet 6 inches. Her four propellers were each direct-driven by turbines and had a shaft horse power of 68,000. Steam was supplied by 23 double-ended and two single-ended boilers, working at 200 pounds' pressure, the total heating surface being 158,350 square feet. Primarily a passenger carrier, she was originally fitted for 552 first-class, 460 second-class and 1,186 third-class passengers, all on a scale of comfort never before attempted. In the third class, for instance, there were forty two-berth rooms, which were an innovation on the North Atlantic, two hundred thirty-seven four-berth, twenty-one six-berth and only four eight-berth. Her cargo capacity was limited to fifteen hundred tons, which was practically her passengers' luggage and the mails.

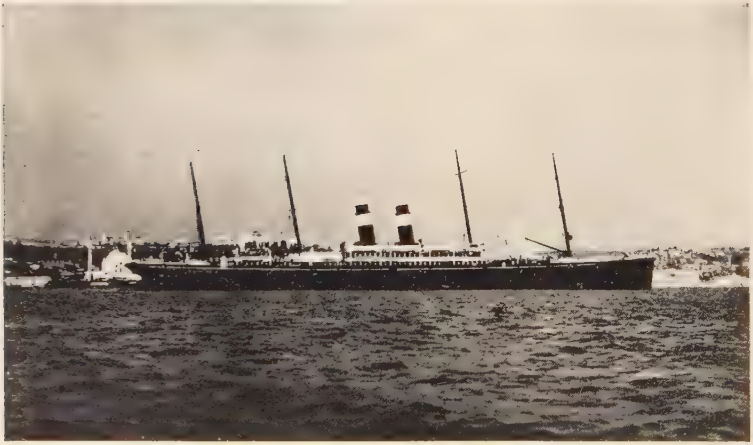
Her maiden trip took place in September when she was paced by her old consort the *Lucania* and it is interesting to note that there were certain doubts expressed in the press as to whether she would beat the older ship. She left Daunt's Rock 35 minutes behind the *Lucania* and arrived at Sandy Hook in 5 days, 54 minutes, doing the 2,782 miles at an average speed of 23.01 knots. Her best day's steaming was 593 miles, 8 miles behind the record set by the *Deutschland,* but of course she was not being pressed. On her second westward run she broke the record with an average of 23.993 knots in spite of having to slow up appreciably through fog, her best day's run being 617 miles.

The *Mauretania* soon followed her, differing from the Clyde-built ship in several particulars. The turbine blading, condensers and boilers were all rather different and generally speaking she was a more successful ship. In the matter of decorations the two ships

The Cunard *Mauretania,* Which Held the Atlantic Blue Ribbon for the Unprecedented Period of 22 Years



*Lapland,* Smaller Counterpart of the *Celtic* Type Adapted to the Red Star Line's Antwerp-New York Service



The *Germanic,* Now the Turkish *Guldjemal,* After Being Torpedoed During the War and Salved were quite different, the builders being allowed a very free hand by the company.

Things were moving steadily on the Mediterranean transatlantic trade. Satisfied with the prospects proved by their earlier ships, the Unione Austriaca started a new program with the 16-knot 6,000-ton steamers *Alice* and *Laura,* the 5,200-ton *Argentina* and the 8,000-ton *Martha Washington,* all fitted to carry emigrants. A new Italian transatlantic company, the Lloyd Sabaudo, had been formed at Turin in 1906, commencing operations in the following year with the *Re d'Italia,* followed by the *Regina d'Italia* and *Principe Piemonte.* They were sister ships built by Sir James Laing of Sunderland, twin-screw vessels of fifty-two hundred tons — later increased by over one thousand — propelled by triple-expansion engines at a speed of thirteen and one-half knots and having good passenger accommodation for about one hundred twenty in the first class and seventeen hundred in the steerage. The capital of the company was six million lire and made such a popular appeal that its first shareholders numbered twenty-four thousand. At the same time it associated itself as closely as possible with the Italian Royal House. All its early ships were named after its members and the Sabaudo of the company's own name was taken from the Royal House of Savoy. It was soon necessary to increase the capital on account of the increasing business of the company, particularly when it went into the South American service as well as the North Atlantic, to cater for the seasonal Italian emigration.

At this time the Italian companies were interested principally in the immigrant trade and had a curious arrangement which not only permitted the rapid transfer of tonnage from the North to the South Atlantic and back again, but divided all the services up between the various companies. The service between Genoa and New York, with calls at Naples and Palermo, was run jointly by the Navigazione Generale Italiana, Italia, La Veloce and Lloyd Italiana lines, the last named by then entirely Italian after being founded under the Italian flag by the Hamburg American Line. But they were all equally concerned in the River Plata trade.

Among others the Navigazione Generale Italiana had the 5,300-ton 15-knot *Italia* of 1905 and to meet the Lloyd Sabaudo competition was building the *Re Vittorio, Duca Degli Abruzzi* and *Regina*

*Elena,* 7,850 tons, 16½ knots. The best ships on the Lloyd Italiana side were the *Indiana* and *Luisiana,* 5,000 tons, 14½ knots, and on the La Veloce the *Europa* of 7,870 tons, 14 knots.

But there is no doubt that the North Atlantic was overstocked with tonnage and in spite of the good business the rate war was hitting all the companies hard. Many of the agreements made between the International Mercantile Marine and the German lines were cancelled by force of circumstances, and in spite of the fact that the number of passengers carried was over twenty-five per cent. above that of the previous year, the Hamburg American Line was forced to reduce its dividend from eight per cent. to six and the North German Lloyd from eight and one-half to four and one-half. It seemed a pity after the efforts that they had been making to improve the material on the Western Ocean, but after all the rate war which did the damage was almost entirely of their own making.

Atlantic interest in the early part of 1908 was centered almost entirely on the Cunarders *Lusitania* and *Mauretania.* They were taken off service for a few weeks during the winter for various adjustments, not nearly as great as were later to be made, and came out improved all around. The *Lusitania* established a new record of 627 miles to the day, while the *Mauretania* obtained the eastward Blue Ribbon with an average of 24.42. Shortly after that a mishap caused her to be run on three screws only, when of course record breaking was impossible. But the *Lusitania* took up the tale and in July the Atlantic was crossed at over twenty-five knots for the first time in history. She averaged 25.01 on the westward run, her best day being 643 miles at an average of 25.43 knots.

The North German Lloyd Line, much as it valued the record, was in no position to build against this sort of thing, but it saw an opportunity to profit in intermediate tonnage and in spite of financial anxiety it put some very fine ships on the New York run. The *Prinz Friedrich Wilhelm* of seventeen thousand odd tons, a Western Ocean adaptation of the *Barbarossa* design, was commissioned in the summer of 1908 and soon afterwards the *George Washington* was launched, the biggest ship in the North German Lloyd fleet, modeled very much on the very successful *Celtic* class of the White Star Line but considerably more elaborate.

For the steerage and cargo services across the Atlantic the Lloyd devised two types. The *Rhein, Main* and *Neckar* were ships of rather more than ten thousand tons with a speed of fourteen knots, and in addition to their other features they had accommodation for cattle. The *Koln* type ships were particularly wanted for the Baltimore and Gulf services, *Koln, Frankfurt* and *Hannover,* later followed by the *Cassel, Breslau Chemnitz* and *Brandenburg.* They were specially designed for the grain and cotton trades, but at the same time they were capable of being used in the Eastern service and the wishes of the Navy Department were respected in designing them with a special eye to the transport of troops in war time. Several of these were used for trooping service to the Chinese garrisons in peace. The Field Marshal type — *Gneisnau, Roon, Seydlitz,* and *Scharnhorst* — were interchangeable between the eastern and western services, while in 1909 a somewhat improved type — *Bulow, Goeben, Yorck, Lutzow* and *Derfflinger* — were built for the same purpose.

Just when the company was passing through its most anxious period, its troubles were increased by its guiding spirit, Doctor Weigand, falling critically ill and having to abandon the helm. His actual death did not occur until March, 1909, but he had to leave the business just when it needed him most. Fortunately he had a very efficient understudy, Doctor Philip Heineken, whose subsequent history has proved him to be as brilliant a man as his famous chief. His first striking success was in the drastic reduction of expenditure without loss of efficiency.

The advent of the big ships made a great difference to the older and smaller vessels in the service and the White Star Line attempted to reach an agreement with the other companies for an adjustment of rates for the older steamers. This attempt was not successful, so they took the matter in their own hands and came out with a new series of fares for the second and third classes. The second-class fare on the Southampton run had been £9.10.0 in the *Oceanic* and £9.0.0 in the *Adriatic, Majestic,* and *Teutonic,* while the third-class fare had been £6.15.0 in the first two and £6.15.0 in the others. Under the new schedule the *Oceanic's* fares were £8.0.0 and £6.0.0, the *Adriatic's* £7.10.0 and £6.0.0, and in the older ships £7.10.0 and £5.15.0.

On the Liverpool run the rate in the *Adriatic's* three sisters, *Baltic, Cedric* and *Celtic,* had been £9.0.0 and £6.15.0; these were reduced to £7.10.0 and £6.0.0, while in the *Adriatic* £8.10.0 and £6.10.0 were reduced to £7.0.0 and £5.5.0. The *Cymric* on the Boston run had her third-class fare reduced from £6.0.0 to £5.5.0.

The Cunard Line naturally followed suit. Under the old scale the second-cabin fares in the *Lusitania* and *Mauretania* were £10.0.0, in the *Lucania* and *Campania* £9.10.0, in the *Caronia* and *Carmania* £9.0.0, and in the *Umbria, Etruria, Ivernia* and *Saxonia* £8.10.0. The prices in these groups were reduced to £8.10.0, £8.0.0, £7.10.0 and £7.0.0, while fifteen shillings was knocked off all the third-class fares to the United States and Canada which after the change ranged from £6.0.0 to £5.10.0 to the United States and from £5.10.0 to £5.0.0 to Canada.

The American Line cut the second-class Southampton-New York fare from £7.10.0 to £5.15.0 and on the Liverpool-Philadelphia service the second-class from £6.10.0 to £5.15.0 and the third-class from 5 guineas to £4.10.0. The Canadian Pacific went a step further and reduced the second-cabin fare to 6 guineas and the third-class to £4.10.0 by the *Empresses* and £4.0.0 by the other ships.

The Atlantic pool which had been working tolerably successfully since 1894, with the exception of a break-away by the Cunard Line, was extended in 1908 to include Scandinavian and British emigration as well as Continental. Each of the lines entering the agreement was allotted a certain proportion of the total trade, the Canadian Pacific and Allan lines only partially entering the agreement and later withdrawing altogether. It was one of the conditions that passengers by British liners should not be inconvenienced or influenced by the German control stations, but this part of the agreement was never carried out by Germany, the grounds given being that German law prevented it, and was the cause of a lot of very ill feeling.

The French American Line commenced service in 1908 with chartered cargo tonnage. The original intention of the promoters was to establish a passenger and cargo service between New York, Calais and Dunkirk, but they found themselves unable to get the material they wanted and had to be content with cargo only until they could collect a little fleet. By 1910 they had succeeded in doing this, their official title being the Societe Générale de Transports Maritimes à Vapeur, with three steamers, the *Espagne* of 3,952 tons, built in 1891, *Les Alpes* of 3,896 tons which had already made her appearance in Atlantic history as the *British Princess* of 1882, and the *Provence,* 3,941 tons, built in France in 1884. As they got into their stride, however, they disposed of their old ships and purchased much newer ones.

The short-lived New York and Continental Line was started under Messrs. Petersen and Tate, the well-known company in the Canadian cargo business. They proposed to run a fortnightly service from Hamburg and Rotterdam to Halifax and New York with a steerage fare of £4.12.0, for which purpose they acquired the new *Volturno,* the former British Indian liners *Avoca* and *Jelunga* and proposed to build two others.

The Canadian trade also attracted the Hamburg America Line, which announced its intention of going into it and fighting the British companies. They had certainly need to do something drastic for conditions in 1908 were even worse than in 1907. In that year there were plenty of passengers, although the cut rates prevented good profits, but the American slump had caused the westward passengers to drop from 2,437,328 in 1907 to 1,530,161 in 1908. In consequence, most of the Atlantic companies showed a loss for the year, others had to pass their dividend if they were to allow a proper depreciation. In spite of this discouraging outlook the White Star followed their policy of great size and reasonable speed, and obtained sanction for the issue of two and one-half million pounds worth of four and one-half per cent. debentures, to cover the cost of two huge liners, later the *Olympic* and *Titanic,* which were laid down at Belfast at the end of the year and which were first rumored to be of forty thousand tons.

Affairs in the Mediterranean trade still showed promise in spite of the situation in the United States and the Italian companies took full measures to get their share of the business. The Navigazione Generale Italiana built the *Duca d'Aosta,* 7,804 tons, 16½ knots; *America,* 9,000 tons, 17 knots, and *Verona,* 8,261 tons, 15 knots. The Italia Company built the *Ancona* of 8,210 tons, 15 knots and the Lloyd Italiana the *Principessa Mafalda,* 9,210 tons, 18½ knots, and the *Taormina,* 8,300 tons, 17 knots. These ships were run in concert but spent a very large proportion of their time on the South American service.

The year was also marked by a serious accident, the collision between the American Line steamer *St. Paul* and His Majesty's cruiser *Gladiator* on April 25, 1908. It occurred during a snowstorm close to the Needles, the *Gladiator* being sunk with considerable loss of life, while the *St. Paul,* badly damaged about the bow, had to go off service for some time.

Nineteen nine began with a much more serious disaster, for on the 23rd of January, in a thick fog just south of Martha's Vineyard, the White Star *Republic* on the Mediterranean service was sunk by the Italian Lloyd steamer *Florida*. The big White Star ship began to sink rapidly and the accident is particularly noteworthy as being the first occasion on which wireless telegraphy was put to a real practical use for the calling of help. The *Baltic, Lucania, La Lorraine, New York* and *Furnessia* came to the assistance of the stricken ship, but by that time the passengers had been transferred to the *Florida* and then on to the *Baltic,* as the Italian was in grave danger. There was a very bad panic on board the Italian ship, but as many of her passengers were refugees from the Messina earthquake which had occurred shortly before, there is a measure of excuse for them.

The most important new service that was planned was that of the Canadian Northern Railways which they decided to start under the name of the Royal Line, a fortnightly service between Bristol and the Saint Lawrence. For that purpose they bought two ships which had been built by the Fairfield yard in 1907 for a service *de luxe* between Marseilles and Egypt which had been a failure. They were named *Cairo* and *Heliopolis,* ships of about eleven thousand tons with a sea speed of a comfortable seventeen knots. They also bought the British Shipowners' Company's *British Empire* which was renamed *Campanello,* the former British India steamer *Avoca* which became the *Uranium,* and the *Volturno* which retained her old name.

The *Cairo* was rechristened *Royal Edward* and the *Heliopolis* became the *Royal George,* but they were designed for Mediterranean service only and they were not suitable for Atlantic work without considerable alterations which kept them up on the Clyde for some months and did not permit the service to be started until the following May. They then secured a Canadian mail contract and carried a large number of passengers, although the service was never a great success.

But if the year did not produce many interesting new companies it certainly produced some very interesting ships. The British-built *President Grant* and *President Lincoln* having proved most satisfactory, the Hamburg American built the *Cleveland* and *Cincinnati* in German yards to run alongside them on the North Atlantic. They were fifteen and one-half-knot, seventeen thousand-tonners and in these ships five o'clock tea was introduced as an innovation, while instead of the big tables in the dining saloon they tried the experiment of small tables seating from two to twelve people and scored an immediate success. At the same time the company decided to build a thirty-eight thousand-ton ship of moderate speed but this idea was abandoned when the scheme for the gigantic *Imperator* class began to take shape.

Competition was still very keen and the Hapag was becoming more and more aggressive in its methods. In 1909 it opened a fighting fund by putting aside two million marks, a sum which soon grew to seven million six hundred thousand, for the purpose of fighting competition. They began it by opening their threatened Canadian service with a summer schedule to Quebec in association with the North German Lloyd, the *Prinz Oscar* taking the maiden sailing.

Next in interest were the *Laurentic* and *Megantic* for the White Star Line. They were originally to have been named *Alberta* and *Albany* and were laid down by Harland and Wolff for the Dominion Line, but as was the case with the Mediterranean service the International Mercantile Marine decided that the White Star Company's prestige was too valuable — at that time it was one of the only companies in the combine that was paying — and so they transferred the nominal ownership and rechristened them in line with the rest of the White Star fleet. They ran alongside the *Canada* and *Dominion* between Liverpool and Canada and their ships of nearly fifteen thousand tons with a speed of seven knots and draught cut down to twenty-seven feet six inches. They differed in their machinery, the *Megantic* being given twin screws driven by quadruple-expansion engines while the *Laurentic* had three propellers, the two wing shafts being driven by reciprocating engines exhausting into a low-pressure turbine on the center one. This system had been tried in one steamer on the New Zealand trade and promised to be most economical; the *Laurentic* was so fitted in order that it might be tested on the North Atlantic before the system was put into the new *Olympic* and *Titanic* as was suggested. With this point in view she did her first few trips on the New York run.

The Atlantic Transport Line reinforced its London service with the *Minnewaska,* a ship of 13,317 tons with a speed of 16 knots, an enlarged adaptation of the original *Minne* ships but considerably improved. She had accommodation for three hundred thirty first-class passengers and a big cargo, including refrigerated space for chilled meat. The Holland American Line got delivery from Harland and Wolff of the *Rotterdam,* a splendid 16-knot ship with a gross tonnage of 24,149 and the Red Star Line went to the same yard for the 18,695-ton *Lapland*. On the Mediterranean run the Navigazione Generale Italiana commissioned the *Principe Umberto,* 7,838 tons and 16½ knots.

The North German Lloyd got delivery of the *George Washington,* which was built by the Vulcan yard at Stettin. She had a gross tonnage of about 27,000 and her quadruple-expansion engines of 20,000 were designed to give her a speed of 18½ knots, although she averaged 19.3 across the Atlantic. She carried her passengers in four classes, 520 first, 377 second, 614 third, and 1,430 steerage.

During the winter months the Cunard *Mauretania* had been thoroughly repaired and had been given new propellers of quite a different type. They made a wonderful difference and when she was tried she ran from the Tuskar to Point Lynas at 27.4 knots. She then promptly lowered the eastward record with an average speed of 25.4. On her next eastward voyage her best day was 671 miles, an average of 26.21 knots, while her speed for the whole trip was 25.55. After that she increased her speed to 25.61 and finally to 25.7.

The *Lusitania* was afterwards treated in the same way with equally satisfactory results and the two flyers began to clip minutes off each others' records in a highly satisfactory manner. But during the year the Cunard Company lost some fine ships. The famous old *Umbria* and *Etruria* were condemned as obsolete and went to the scrappers, but the *Slavonia* on the Mediterranean service was wrecked in the Azores, although all on board were saved. More serious to the mail service was the fact that the *Lucania,* which was still very popular and a long way from being worn out, was burned in Liverpool docks. A survey condemned her as being past mail service and she was sold to Wards, the scrappers, but in spite of the fact that she was practically gutted she worked up to seventeen knots on the way around.

No suggestion was made that it would pay any company to build record breakers against the Cunard, but the decade ended with any number of rumors concerning the huge super-liners of more reasonable speed, particularly for the Hamburg American.

## *Chapter IX: The Decade of the War*

Of the second decade of the twentieth century it is difficult to remember any feature except the Great War, so completely did that struggle overshadow all other considerations, suspending all operations on the Atlantic, checking all progress and setting the shipping world problems which are still far from solution. But the war did not break out until the decade was nearly half spent, and although many events that occurred between 1910 and 1914 are not remembered so well as some occurrences in the eighties and nineties they are both interesting and important.

The Cunard Line began the decade with their usual policy of conservative finance, for although they made a record profit they decided to pass their dividend. The loss of the *Lucania* and *Slavonia* had made a big hole in their insurance fund and their first duty was thought to be to restore it. The old *Umbria* joined her sister the *Etruria* in the scrappers' hands and the money the company received for them went into the reserve.

This greatly strengthened the company's position in their struggle with Germany, but at the same time there were many outgoings too. Two ships of a new type were on order, later to become popular as the *Franconia* and *Laconia,* and it was the company's intention to let these ships revolutionize the Boston service and relegate two of the older Boston steamers to the Mediterranean run.

Apart from this, the year 1910 brought little but minor development to report among the British companies. The White Star Line tried Holyhead as a port of call for its Liverpool steamers for some time, but found that it was not really worth the trouble, which was the same lesson that the Cunard learned at Fishguard, and they abandoned it after some time.

But all the companies were very interested in trying alternative ports. In spite of the discouragement that was taught by history the Galway scheme was revived by the Midland Great Western Railway of Ireland, but the bill was far too great to be paid by

Irish interests and no outside help was forthcoming. On the other hand, the suggestion that Montauk Point on Long Island should be used by the White Star as a terminal for the new *Olympic* and *Titanic* because the piers at New York were inconveniently small was a very much more serious matter and with the backing of the Long Island Railway it was very nearly adopted. The idea of that change had been suggested twenty years before, but in those days the sole object of the transfer was to shorten the journey. Steamers were not yet too big for any of the piers provided by New York—and this was not sufficient to justify any move.

The Dominion Line had a lot of very old tonnage on its list which it took the opportunity to clear off in 1910 and 1911. The old *Vancouver* was a real veteran, and although she had done very useful work in the Canadian service she was long out of date. The *Roman* of 1884 and the *Ottoman* of 1890 were also obviously nearing the end of their days, but it came as rather a surprise when the *Kensington* of 1894 was also disposed of to be broken up, as she had been a most successful ship and was still popular, although, of course, much smaller than the steamers which had been built later.

The Royal Line did quite reasonably well with its Bristol-Saint Lawrence service from the beginning, although its fleet was not big enough for real financial success. Its original intention was to rename the *Volturno* and to call her *Royal Sovereign,* but the idea was abandoned and it was decided to keep the name *Royal* in its express ships only.

The Atlantic Transport Line nearly lost a fine ship that they could not afford when the *Minnehaha* stranded on the Scillies. To begin with, it looked as though her position were hopeless, for she was very firmly aground forward and the rocks did a lot of damage to her hull within a few hours of her stranding. The manner in which she was refloated and taken to port was regarded as one of the triumphs of the famous Captain "Freddie" Young of the Liverpool Salvage Association.

Much more was happening on the Continent, where nationalist principles were attracting the minor shipping countries which had until then generally been content to rely on the bigger maritime powers for their better facilities and to confine the operations of their own flags to the smaller and less expensive services. The change was bound to come sooner or later, and the naval development of the smaller countries which took place before the War in imitation of the race between Britain and Germany supplied the occasion. All the agreements between States and companies contained clauses which put the developments to naval use.

The Holland America Line had been steadily improving its material under its connection with the International Mercantile Marine, and in 1910 it contrived to secure a very advantageous mail contract with the Dutch Government. Until then it had been carrying mail at union rates, but this ten-year agreement provided for a very much more generous scale, gauged by the number of cubic feet of hold space occupied by the mail. It would have put the company into a very comfortable position had it been allowed to run undisturbed; as it was, the War intervened and on its profits as neutrals the company prospered as it had never dreamed possible.

For many years the carriage of Norwegian emigrants had been entirely in the hands of foreign lines, either the Forenede's Scandinavian-American service or else the British and German lines whose fights for the trade have already been described. Of these latter the British undoubtedly had the cream. But Norway, as the premier shipping country of Northern Europe, was not satisfied with that and in 1910 it was found possible to launch a project that had been under consideration for many years, a purely Norwegian steamship company which should maintain a regular passenger service between Norway and the United States. The promoters had the strong support of the Government, which offered to pay them an annual subsidy of £27,000 for two years; later arrangements were to be a matter for negotiation after they were running. In order to get this help, the company first had to secure its capital of £333,000. It had no difficulty in doing that, over half being subscribed by Norwegians in the United States.

The original idea was to buy the old North German Lloyd liner *Kaiser Friedrich,* which had been laid up ever since her owners threw her back on the builders' hands, but wiser counsels prevailed and the company went to Cammell, Laird's for two ships that were designed specially for the service and which were completed in 1913.

The *Bergensfjord* and *Kristianafjord* were ships of eleven thousand tons with a speed of fifteen and one-half knots, reasonable cargo capacity and accommodation for a limited number of first- and second- and a large number of third-class passengers. They started operations in 1913 and proved successful from the first, but naturally they were helped tremendously by their neutral status as soon as war broke out. It had already been decided to build a third steamer but the outbreak of hostilities delayed that move.

The career of the Norwegian American Line having started auspiciously, it was not surprising that the Swedes should immediately follow suit and suggest a Swedish American Line. Mr. Dan Brostrom was the mainspring of the project, one of the leading and most enterprising shipowners in Sweden, and he planned to float a company which should start operations in 1915 with a fortnightly service maintained by two eighteen thousand-ton, eighteen and one-half-knot steamers, subsequently to be increased to four in order to obtain a weekly schedule.

The Government was to grant a mail subsidy as well as an additional naval subsidy in order to have the ships available for use as cruisers, and were to offer facilities for the company to obtain a loan on easy terms. The War prevented all this and although the company did start operations in 1915 there was so little tonnage available at that time that it was on a very different scale from that planned.

The Holland American *Potsdam,* one of the Harland and Wolff series, was purchased in that year and renamed *Stockholm,* starting the policy of the company in giving all their ships names ending in *Holm.* No others were available until after the War, when the former Allan Line *Virginian* was purchased.

The Danish East Asiatic had no reason to complain of the results of their subsidiary, the Russian American Line, during its three years' small-scale working, and in 1910 they transferred to it their steamer *Birma,* originally the Castle Line steamer *Arundel Castle* on the Cape service, which was renamed *Mitau.* At the same time they ordered from Messrs. Barclay, Curle and Company an improved *Russia* which came out as the *Kursk.* Two years later, in 1912, they proposed to replace the original *Estonia* and *Lituania* by the *Czar* and *Czaritza.* Only the former was built at that time, with a tonnage of 6,516, and although the *Estonia* was destroyed by fire in 1913 the *Czaritza* did not come out until the outbreak of war—and then she was not by any means a sister. However, just before the War, they bought the steamer *C. F. Tietgen* from the Forenede Line and renamed her *Dwinsk*. She had originally been built in 1897 for the Holland America Line as the *Rotterdam*.

In 1910, with the national idea just as much in mind as the economic, an effort was made to consolidate the mail services subsidized by the Italian Government, and accordingly the Societá Nazionale di Navigazione was formed to take them over, but before many months had passed the Lloyd Sabaudo stood out for independent action and in 1913 the idea collapsed entirely.

The Hamburg American Company was still continuing its aggressive policy of inaugurating new services which had caused so much stir at the end of the last decade. In 1910 a new fortnightly service was opened between Hamburg and Philadelphia with *Prinz* liners and ships of the later "P" classes, while in 1911 the New Orleans service which had formerly been profitable was revived. Two years later, in May, 1913, it may be mentioned that the company started a new service to Boston with the *Cleveland* and *Cincinnati,* which will be described later.

At the same time the directors abandoned for good the much-discussed policy of express liners and confined themselves to reasonable speed, comfort and size. The company's one record-breaker, the *Deutschland,* had not been a lucky ship at all. She had the economic disadvantages of a lone ship, she vibrated excessively, and her boilers had given a good deal of trouble. In spite of the fact that a new battery had been installed in 1908 she was still far from satisfying the Hamburg American's ideals of comfort, and accordingly in 1910 she was taken off the New York service and converted into a cruising yacht under the name of *Victoria Louise,* her engines being altered and boiler power reduced until she had a speed of eighteen knots only, which was ample for her pleasure cruising to the West Indies, Norway and the Mediterranean.

If 1910 had been an uninteresting year as far as the principal British companies were concerned, 1911 certainly was not. First, the White Star Line brought out the biggest ships under the British flag, for the time the biggest ships in the world, and second, the Cunard Line started its policy of amalgamation that was to go far.

The White Star *Olympic* and *Titanic,* the former being finished first, were certainly ships in which any company could take the greatest pride, and on account of their size they brought new credit to their builders, Harland and Wolff. In general details they were sisters, 852.5 feet long by 92.5 beam by 59.5 depth of hold, but they had the usual slight differences of sister ships and their gross tonnages worked out as 45,324 in the case of the *Olympic* and 46,329 in the *Titanic*. Their passenger accommodation was 1,034 in the first, 510 in the second and 1,022 in the third class, but some of this was so designed that it could be transferred from one class to another. Their normal crews consisted of 860 men — 65 in the navigating department and on deck, 320 engineers and 475 cooks, stewards and the like.

They were propelled by combination engines on the system which Harland and Wolff had already tried in the White Star *Laurentic,* three screws of which the outer ones were driven by four-cylinder triple-expansion engines which exhausted into a low-pressure turbine on the center shaft. These engines totaled fifty-five thousand horse power and were supplied with steam by twenty-four double-ended and five single-ended boilers arranged in six entirely independent and isolated boiler rooms. The uptakes of these six boiler rooms ran into three funnels, although the ships were given a dummy fourth funnel in order to improve their appearance.

On her maiden voyage the *Olympic* showed that the "reasonable speed" with which she was credited by her owners was quite enough for the purpose for which she was built. On her maiden voyage she averaged 21.17 knots westward and 22.32 knots eastward, quite enough if any balance was to be maintained on the Southampton service. Later, however, she proved herself able to do considerably better than that and was always a remarkably steady and reliable steamer.

Unfortunately, at the very commencement of her career, she was involved in a collision in Southampton water with the cruiser *Hawke*. The naval officers pleaded that the bulk of the big ship had drawn them bodily towards her, opening up a very vexed question which occupied the attention of the courts and naval architects for a long time afterwards.

Having tried the three-funneled *Columbia* on the Western

Ocean and being very well satisfied with her results, the Anchor Line had followed her up with the larger *Caledonia* of 1904 and the *California* of 1907, but they were still not satisfied with the balance of their service and in 1911 went on with the *Cameronia,* built like the others by the allied firm of D. and W. Henderson. She was a twin-screw ship of 10,963 tons gross, a big jump on her predecessors, while her speed was also increased to 17 knots which was a trifle more than the service really called for. With her two funnels and two masts she was almost indistinguishable from her predecessors. Her advent retired the famous old *Furnessia* into the reserve.

Although of course this augmented Anchor fleet was not to be compared with those of the White Star or Cunard, it was very well balanced and remarkably well run, and its competition had to be taken seriously. The Cunard directors fully realized this, as was shown by their subsequent action.

The first move in an interesting series came from the Anchor Line. It had succeeded so well on the North Atlantic that the directors came to the conclusion that they would be wiser to dispose of their Eastern interests in order to consolidate their attention on the service that was paying best. They therefore entered into negotiations with the Brocklebank Line to sell them their Calcutta business and the four steamers that were employed in it. While these negotiations were in progress the Cunard Line bought all the Anchor Line's ordinary shares and, starting their policy of making their interests world-wide, insisted that the Anchor Company should purchase two fifths of Brocklebank's ordinary capital while the purchase of their own service was completed according to plan. The result was that both the Anchor and the Brocklebank services came under Cunard influence and the group became immensely powerful. Mr. A. C. Henderson of the Anchor Line joined the Cunard and Brocklebank boards, while Sir Alfred Booth and Sir Thomas Royden of the Cunard Line became Anchor directors.

The Cunard Company paid seventeen pounds per share for the Anchor capital, the holders having the option of taking ten pounds in cash and seven pounds in a new issue of fully paid five per cent. preference stock, or the whole in cash. Many of the principal shareholders of the Anchor Line, including the Henderson family, preferred to take the stock.

This was only one of the moves by which the Cunard altered the shipping situation by their judicious acquirements. In the same year it completed a plan which had been in the minds of the directors for some time past, and reëntered the Canadian trade by purchasing the London-Saint Lawrence passenger business and fleet of the Cairn Line. This was originally the Thomson Line and had only been purchased by the Cairn Company in 1909, the three ships which went with it being the *Cairnrona* of 7,682 tons, the *Tortona* of 8,153 and the *Gerona* of 9,111 tons and 13 knots. Under the Cunard flag these three ships were renamed the *Albania, Ausonia* and *Ascania,* but the first named was sold out of the fleet at the first opportunity as not being up to the Cunard standard and the last named not being complete was considerably altered to Cunard views before she was commissioned.

The company immediately took steps to improve the tonnage and laid down the *Andania* and *Alaunia,* twin-screw two-funneled ships of roughly thirteen thousand four hundred tons with a speed of sixteen knots and a great improvement on the previous tonnage of the service.

This purchase was of very much more importance to the Cunard people than the size of the service and its ships would appear to warrant. The game of Atlantic politics was becoming involved, and in getting a foothold in both the London and Canadian trades without quarreling with the Conference the company looked well ahead.

The popular *Ivernia* had the bad luck to strand on Daunt's Rock at the entrance to Queenstown Harbor, but she came off in a very short time and entered the port. It was at first thought that she had sustained very little damage, but she was found to be filling rapidly and had to be beached in a hurry. When she was drydocked portions of an old wreck were found embedded in her hull and there was infinite discussion as to whether it was the Inman *City of New York* which came to grief in 1864 or the Guion *Chicago* which was wrecked on the same spot in 1868.

The White Star-Dominion service got rid of a very famous ship in the *Ottawa* which was far better remembered as the record breaker *Germanic.* At that time the Turkish Government were making leisurely preparations to suppress a revolt in Arabia and they bought her as a transport, together with the smaller North German Lloyd steamers *Darmstadt, Oldenburg, Roland* and *Heidelberg*. Before they could use this tonnage very much, the Italian War had broken out and Arabia had to look after itself. The old *Germanic* survived, however, and under the name *Gul Djemal* was used as a transport in the Great War, and is still afloat.

If the *Olympic* made 1911 essentially a British year, 1912 was equally a German one, for the ship of the year was undoubtedly the Hamburg American liner *Imperator,* launched by the Vulcan Yard at Hamburg on May 23d. There had already been a good deal of talk concerning her enormous size and definite details were eagerly awaited, the more so as many shipping men favored her owners' policy of size rather than speed. On dimensions 882.9 by 98.3 by 57.1 depth of hold she had a gross tonnage of 51,979 and was propelled by quadruple-screw direct-acting turbines at a speed of 22½ knots. The total power of her turbines was 62,000 shaft horse power ahead, 35,000 astern, and they were supplied with steam by 46 single-ended water tube boilers of naval pattern working at a pressure of 228 pounds to the square inch. Naturally enough, her consumption was huge and she stowed 8,500 tons of coal.

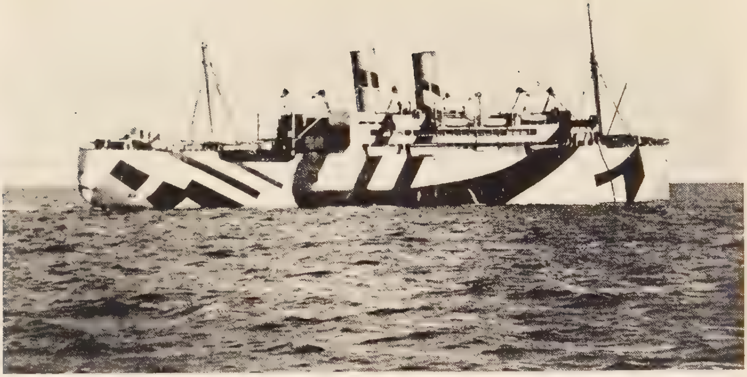
Her passenger quarters left nothing to be desired in the way of luxury, there being accommodation for 714 in the first class on permanent beds, with another 194 on sofas or spare beds. In the second class there were 401 beds that could be increased by a further 191, while in the third class there was accommodation for 962 passengers with a further 1,772 in the steerage. No expense or trouble was spared to make her the most remarkable ship to date as well as the biggest.

Her public rooms were the finest ever put afloat, the architects' scheme for obtaining a vista from end to end of the first-class range being made possible by dividing the uptakes of the two funnels — the third was a dummy — and carrying them up the sides of the superstructure instead of through the middle, joining them just above the boat deck in a stepped glacis.

Second in importance to the *Imperator* among the new ships came the Cunard *Franconia* and *Laconia,* sisters built by Swan, Hunter on the Tyne. As has been mentioned, they were primarily intended

The Cunard *Berengaria*, Built for the Hamburg American Line as the *Imperator*, First of the Giant Ships

The White Star Liner *Homeric*, Once the North German Lloyd *Columbus*



The Canadian Pacific Cabin Liner *Melita* in War-Time Dazzle Paint

The Cunard *Aquitania* as a Hospital Ship During the Dardanelles Expedition for the Liverpool-Boston service, but it was planned to put them on the Mediterranean-New York run in the winter months. They were practically sisters of about 18,100 tons, although their dimensions were just a shade different, with quadruple engines of 18,000 indicated horse power giving them a speed of 18 knots. They carried about 2,850 passengers in three classes and had a dead-weight capacity of 7,230.

Not all the tonnage that the Cunard Line acquired with the Cairn purchase was suitable for their requirements and at the first opportunity they disposed of the *Albania,* which in the old service was the *Cairnrona* and which had been built as the *Consuelo.*

But interesting as the new ships were, their advent was almost forgotten in the most terrible disaster in British shipping history, the loss of the giant White Star liner *Titanic* on her maiden voyage, a loss which occurred through her striking an iceberg on the night of April 14th in Latitude 41° 46′ N., Longitude 50° 14′ W. and which involved the loss of 815 of her passengers and 688 of her crew, in spite of the fact that the night was calm and ideal for the use of life-saving appliances.

Had she hit the berg head-on there is no doubt that a ship of her fine construction would have survived; by the worst of luck she hit it a glancing blow and it grazed all along her starboard side, opening up compartment after compartment for the greater part of her length. No ship afloat at her day could have survived such a wound. The boats were inadequate for the number of lives on board; although in this it must be remembered that hers was one of the few cases in history where boats for all could have been used to advantage, and her wireless calls were unheard by the ships nearest. Had wireless and continuous wireless watch been compulsory at that time, there is no doubt that the death roll would have been much lighter. A ship fitted with wireless was less than twenty miles away, with no operator on duty, and another without wireless was within five miles.

Even in such a ghastly disaster as that of the *Titanic* there were redeeming features; not only the gallantry of many of the men concerned in the tragedy but also a fine exhibition of the gallantry between companies. When she had rescued a large number of the survivors the Cunard *Carpathia* turned back to land them at New

York, naturally running her owners into heavy expenses. In addition, the Cunard Company granted a month's extra pay to every man of the crew, in consideration of the extra work that they had tackled and the hardships which many of them had gone through. The White Star Company immediately offered to reimburse the Cunard Line for all its expenses, but this offer was courteously but firmly refused. The Cunard people, however, granted the White Star Company's request that they might be allowed to send a check of one hundred pounds to Captain Rostron, and fifty pounds each to the officers who had undertaken most arduous work, in addition to another month's pay to every man of the crew. Captain Rostron also received many other rewards, including the highest decorations for life saving.

As was only to be expected, the disaster resulted in a good deal of legislation, some very desirable but some most unfortunate. There is no doubt that it was a boon to shipping in general that proper use was made of the facilities given by wireless, while several of the companies were willing to try the searchlights which were recommended so strongly but which proved quite useless for their purpose. On the other hand the cry "Boats for All" became merely a slogan, but it was embodied in panic legislation and all passenger ships were bound to carry them. The case of the *Titanic* itself is one of the very few in which boats for all could have been useful; as a general rule, a disaster at sea means that it is quite impossible to launch all the boats which any ship carries, while the space might be far more advantageously used for life rafts and other buoyant apparatus. Also the heavy weights placed as high up as possible carry their own disadvantages, as was proved many times during the war when the boats-for-all slogan resulted in many ships capsizing long before they would have otherwise gone down, drowning many who would have had at least a chance of safety.

Soon after the *Titanic* disaster Mr. Bruce Ismay retired from the control of the White Star Line and after a short interval was succeeded by Mr. Harold Sanderson. He had been a partner in the new firm of Sanderson and Company but transferred to Messrs. Ismay and Imrie, the managers of the White Star Line, in 1895. He was given a partnership in 1899 and since then had had a prominent say in the affairs of the White Star Line. The choice of Mr. Sanderson to succeed Mr. Ismay was undoubtedly a wise one on the part of the company, for not only had he a remarkable business knowledge and efficiency but was one of the most popular and universally loved men connected with the shipping industry, which was of the greatest service in tiding the White Star Line over a very difficult period.

After the catastrophe the *Olympic* was taken off service for a considerable time and work undertaken which answered all the criticism made at the time of the disaster and undoubtedly made her as safe as a merchant ship possibly could be. The subdivision of the hull was greatly improved, the double bottom carried further up as a protection against ice or collision, and boats for all provided. This work took her off service when she was most needed and reduced the profits of the company greatly, but it was successful in completely restoring confidence and she soon made herself one of the most popular passenger carriers under the British flag.

On the Canadian run the Allan Line strengthened its fleet for competition against the Canadian Pacific by the purchase of the White Star liner *Romanic,* built as the Dominion *New England* in 1898, which they rechristened *Scandinavian.* At about the same time they entered into a mail contract with the French Government, strengthening the bonds between France and French Canada by a subsidized mail service, and concentrated their attention on the Canadian service by the sale of their River Plata route to the Donaldson Line, against whom they had first started it.

After several doubtful starts, the Compagnie Générale Transatlantique opened a greatly improved service from Havre to the Saint Lawrence in the spring of 1912, using Quebec as its terminal in the summer and Halifax in the winter. The ships employed on this service were *Floride, Caroline, La Touraine* and *Niagara.*

The Warren Line, although it had made an excellent reputation on the North Atlantic, was not doing particularly well and Furness, Withy and Company had the opportunity of buying it, together with the four steamers which remained in its fleet, for the sum of four pounds for each ten pounds Warren share. A new company was immediately registered with a capital of one hundred thousand pounds to manage the line, George Warren and Company Ltd., and the purchasers took care not to destroy the reputation and identity of the company.

Among the smaller Continental flags things were also moving. Mr. Dan Brostrom was making progress with his scheme for a Swedish-American line already mentioned. The National Line of Greece was immensely proud of the delivery of the *Macedonia,* fourteen thousand tons, by James Laing of Sunderland, for she was not only the biggest ship on their New York emigrant route but was the biggest and finest steamer in the Greek merchant service. No sooner had she been delivered than she was taken up by the Greek Navy as an auxiliary cruiser in the Balkan War and was unwary enough to get caught in the harbor of Syra by a regular Turkish man-of-war, who, with unusually good gunnery, set her on fire and eventually sank her.

Ever since it had started its passenger business in 1905 the Unione Austriaca had steadily progressed, and in 1912 it was in a position to come to an advantageous agreement with the Austrian Government. The company undertook to maintain twenty-six sailings a year and to submit to a certain amount of freight regulation in return for a subsidy; to cover this they built the *Kaiser Franz Josef,* a 19-knot ship of 12,567 tons which was by far the finest Austrian vessel on the Western Ocean.

Nineteen thirteen was overshadowed by the *Titanic* disaster of the previous year, but happily it aroused the authorities to the grave danger of ice on the North Atlantic and steps were taken first by the British Board of Trade to establish a service that would give due warning, for the lessons had been learned sufficiently well to prevent a faulty wireless watch being kept in Atlantic liners for the future. The authorities called the principal British Atlantic lines into conference in January, to discuss the chartering of a ship equipped with wireless telegraphy to patrol the trade lanes and give due notice of ice, the cost to be borne jointly between the department and the companies. Within a few weeks it was decided to charter the auxiliary whaler *Scotia,* a stoutly built little 357-ton ship which had been launched in 1872 and which had recently been used by Doctor Bruce's Scottish Antarctic Expedition, proving beyond all doubt that her hull could stand anything. In addition to her ordinary crew, three scientific observers were shipped, the idea being to undertake important oceanographical work as well as the ice patrol.

She sailed from Dundee in March, 1913, and soon proved both that excellent work could be done and also that she was far too small a ship for the purpose. The United States Coastguard force then came forward and volunteered to undertake the work on a larger scale to be paid for jointly by the maritime powers in proportion to their Atlantic shipping. The big cutter *Seneca,* which had been built in 1908 for the somewhat similar work of searching for and destroying derelicts in the Atlantic, was put on to the patrol, and immediately showed that she could be of the greatest service to Western Ocean merchantmen. She carried on through every ice season except during the war years until 1922, when she was relieved by the more up-to-date, electrically driven cutter *Modoc,* joined next year by her sister ship the *Tampa.*

The giant *Imperator* was unlucky to begin with, for she began by stranding on a sandbank when being delivered and followed that up by an explosion of benzine through the carelessness of the workmen. Minor matters, but they caused an unfortunate delay in her maiden sailing which impression was only reduced by the favor and interest shown in her by the Kaiser.

Her minor troubles, which had been given totally unnecessary prominence because of the size of the ship, were followed by real troubles when she got to sea, and it was decided to make drastic alterations in her, particularly in the boiler room. They were widely advertised and were just as widely discussed, but her owners were certainly wise to undertake them and in any circumstances it was only customary to get a good many troubles in a new ship of such a revolutionary design.

The North German Lloyd also planned to build big ships, although not so large as the Hamburg Americans, and in 1913 launched the first of two sisters that were to continue the *George Washington* principle with vast improvements. She was the *Columbus,* launched by the Schichau Yard at the end of the year but destined to be completed just too late to see pre-war service under the German flag. After the Armistice, of course, she had to be surrendered and is now the White Star *Homeric.*

The advent of such a big ship as the *Imperator* made it very necessary to have the finest possible approaches into New York Harbor, and happily the Ambrose Channel dredging scheme was completed, after twelve years' hard work, just as she was ready for sea. The channel had been used for some time past and it was just big enough to accommodate the *Lusitania* and *Mauretania* when they came out, but New York was not satisfied with that and aimed at nothing less than the completion of the full scheme, a seven-mile channel with a minimum width of two thousand feet and depth of forty feet of water at low water, spring tides.

The disaster of 1913 was the burning of the emigrant steamer *Volturno,* owned by the Canadian Northern Company (Royal Line), but chartered to the Uranium Steamship Company for the carriage of Continental emigrants. When she left Antwerp she had 24 cabin passengers and 540 in the steerage, but on October 9th fire was reported in the forward hold and although every effort was made by the crew it soon began to get a firm grip of the ship. Luckily she was fitted with wireless and her first S.O.S. was picked up by the Cunard *Carmania* which, in spite of the very heavy weather prevailing at the time, rushed to her assistance at a speed of nearly twenty-one knots. Other ships arrived, but the weather was too bad to lower boats and after more than one had been smashed and its people drowned, the captain of the *Volturno* declined to risk any more. The *Seydlitz* of the North German Lloyd, *Kroonland* of the Red Star, *Minneapolis* of the Atlantic Transport, *La Touraine* of the Compagnie Général Transatlantique, *Czar* of the Russian American Line, and other ships came up, and finally the Anglo-American Oil Company's tanker *Narragansett,* which made rescue possible by pouring lubricating oil on the water. Eventually 521 out of the 657 people on board were rescued, a heavy enough death roll but one that might have been expected to be greatly exceeded in the circumstances that prevailed.

To replace her, the Canadian Northern Company reinforced its fleet by purchasing the *Principe di Piemonte,* one of the three pioneer steamers with which the Lloyd Sabaudo Company had started business. For the Canadian run she was renamed *Principello* and was transferred to the Cunard Line with the rest of the Canadian Northern fleet during the war, to be renamed *Folia* and to be torpedoed soon after she was taken over.

As soon as the Canadian Pacific liners *Empress of Britain* and *Empress of Ireland* caused such a stir when they came out in 1906, the Allan Line had planned a suitable reply, but the execution of the scheme was put off time and again and it was not until 1913 that circumstances permitted them to place the order with Messrs. Beardmore on the Clyde for the ships later known as the *Alsatian* and *Calgarian*.

They were far in advance of anything that had been designed for the Canadian trade, having a gross tonnage of practically 18,500 and direct-acting turbines developing 21,000-shaft horse power working on four shafts. Steam was supplied by six double-ended and four single-ended boilers, giving an average speed of nineteen knots on a consumption of two hundred seventy-five tons of coal per day. Their passenger accommodation was for over fifteen hundred and they had a deadweight capacity of seventy-six hundred. Immediately they were put in service they created a great sensation and established themselves as very popular packets, but the war prevented their full benefit being felt. Both were commissioned as auxiliary cruisers, the *Calgarian* being sunk and the *Alsatian* surviving to become the *Empress of France* which is known to-day.

The Austrian press and public had long been much dissatisfied with the very autocratic control exercised over their emigration by the German companies, and in 1913 caused a great stir by coming to an agreement with the Canadian Pacific Line and subsidizing an emigrant service from Trieste to the Saint Lawrence. For this service the *Lake Erie* and *Lake Champlain* were adapted. The German vested interest in Austria proved to be very strong and they used every means to put an end to this unwelcome competition, including the power of the German military authorities under the Triple Alliance, with the result that the Canadian Pacific were put to infinite trouble by accusations — found to be baseless when they had disorganized the business — of smuggling out of the country young Austrians desirous of avoiding military service.

For a long time past, the companies, particularly the Cunard, had been very anxious to drop the call at Queenstown so that when the obvious risk which was involved by the *Lusitania* and *Mauretania* working through the narrow entrance gave them the excuse they wanted they announced that these two ships would no longer call at the Irish port. Naturally enough there was a great outcry at the omission, strongly backed by political considerations, but the truth was that the main purpose of the call had disappeared. When it was started it was designed to compensate to some extent for the absence of an Atlantic cable, and the packet steamers maintained by the railway company were so much faster than the Atlantic liners of that day that it was a big saving of time. But in 1913 there were numerous cables crossing the Atlantic and the big lines had outstripped the packets in the matter of speed, so that there was no real reason why the expense and risk should be incurred.

But political considerations were too strong for the company to abandon the Irish call immediately, so that they set about it gradually, beginning by refusing to embark passengers there in their big ships and refusing to risk them by going right inside the harbor for their mails. Therefore, if the weather were too bad for the tender to come alongside as the ship lay outside the port, it meant that the last mails did not get shipped, and the public could be relied upon to cause an outcry over that.

As an experiment, a call at Fishguard on the Welsh coast was substituted which was satisfactory enough from the mail point of view but which was very inconvenient from most others. Although the Welsh founded great hopes on this call, it was not destined to be permanent.

On the other hand, plenty of important ships were left making the call. The Tuesday sailing from Liverpool was slightly modified and made a weekly one, the *Carmania* and *Caronia* taking it on their way to New York and the *Franconia* and *Laconia* on their way to Boston.

Soon afterwards the White Star Line, in consequence of the *Olympic* having found the weather too bad either to enter the harbor or to embark her passengers outside, announced that they also would abandon Queenstown.

The American Line steamer *Haverford* had what might have been a nasty stranding when she left the entrance to Queenstown Harbor in a fog and stranded in Rocky Bay. Two holds were flooded and the ship was hard and fast ashore, but tugs from Queenstown contrived to find her and took off her twelve hundred passengers, the ship herself being salvaged a short time afterwards.

The old question of the Galway route was revived in 1913, when everybody thought it was dead, by a bill introduced into Parliament asking for powers to construct four and a half miles of railway from the proposed site of the transatlantic Harbor to the main line of the Midland Great Western. The bill also gave permission to construct two large piers in Galway Bay, the whole job to cost about a million and a half, but it came to nothing.

In 1913 the Compagnie Générale Transatlantique signed a new mail contract, which gave them a steady six million francs per annum for the first four years, after which they were expected to have established themselves to new conditions, and the subsidy was to vary from two and a half million francs to seven million two hundred thousand, according to the profits earned by the company, five per cent. being regarded as the dividend datum line. The contract saddled the company with a number of building liabilities and gave the Government a share of their profits if they prospered; it also gave the Government half of any reserve that they had built up at the end of the twenty-five years for which the contract was to run.

On the whole it seemed rather a hard contract on the company, which had to maintain a weekly service from Havre to New York with any intermediate calls that the Government might demand. On the other hand, it had a subsidy and that was worth something, and it also had tolerable security of policy for twenty-five years, which was worth a lot. Unfortunately the War intervened and broke everything up.

By 1913 Britain and Germany were obviously rapidly drifting towards war and a good deal of political capital was made out of the auxiliary cruiser fleet which the Germans had built up so carefully. This political movement came to a serious head when the North German Lloyd liner *Kaiser Wilhelm II* put into Southampton for repairs after a collision and it was discovered that she carried gun mountings on board.

This fact caused great discussion in the Press and undoubtedly did a lot towards drawing the attention of the public to the preparations which Germany was making, but it was entirely unnecessary, for the arrangements had been known to the British Admiralty for some years and they were not, in fact, very different from those made for the *Lusitania* and *Mauretania.*

But the public interest aroused led naturally to public interest in the defense of merchantmen, particularly those carrying foodstuffs, in the event of war. This was a question that was to cause a lot of trouble when America was a neutral in the early days of the struggle with Germany. The case of the auxiliary cruiser had already been fully considered but in view of the possibilities of the depradations of converted merchantmen on British trade lanes, Mr. Winston Churchill, who was then First Lord of the Admiralty, brought forward a scheme for giving a defensive armament of old 4.7-inch guns, taken from obsolete Naval Defense Act cruisers, to a certain number of food ships. Only a certain number were chosen, all were used essentially for the supply of foodstuffs and in each of the thirty-nine ships fitted no mistake was permitted as to the purpose of the gun by mounting it right aft with a very limited arc of training.

Only ships employed on food service within the Empire and on the South American services were treated and no ammunition was carried in time of peace. Naturally, it was pointed out that large supplies of British foodstuffs came from the United States, and that if the scheme was to be effective ships on the North Atlantic would have to be armed as well, but on account of the uncertainty as to the exact attitude of the United States authorities, with more than a suggestion that they would be strongly against the practice, the scheme was not carried to that length. In spite of this factor, however, Mr. Churchill was not discouraged and as soon as war broke out was prepared to increase the number of ships considerably. The prompt steps taken by the Germans in August, 1914, resulted in one ship so armed being attacked before she got her ammunition, but subsequent events showed that the arming of merchantmen was not only advantageous but absolutely necessary, and by 1918 American merchant ships were armed better than any afloat.

With 1914 and the succeeding years, it is difficult to connect anything but the World War, but the period between January and the outbreak in August was a very busy and interesting one on the North Atlantic. The North German Lloyd still kept busy in improving its secondary fleet and had not war broken out would have had some very remarkable ships in service. It launched the *Zeppelin* at the Bremer-Vulkan yard, a ship which was the first of a new type. She had a gross tonnage of sixteen thousand and accommodation for five hundred first, five hundred second and fifteen hundred third-class passengers in addition to a large cargo and the most up-to-date means of working it with the minimum of delay in port.

Another very important German liner that was building before the war, and was launched in December, was the Hamburg American *Tirpitz,* again a new type designed on somewhat the same lines as the *Zeppelin* but with less attention to cargo. She was built by the Vulcan yard at Stettin and was a ship of 19,300 tons, designed for a speed of 17 knots with turbines of 16,000 standard horse power, geared to the shafts with Foettinger hydraulic gear instead of the ordinary mechanical gearing.

She was designed to afford the maximum of luxury on a comparatively small tonnage and wonderful accommodation for her first-class passengers, including two suites de luxe which were more magnificent than anything that had been put afloat on the Western Ocean.

When she was launched she was laid aside, but when things appeared particularly prosperous to German arms, the Kaiser gave orders for her to be completed, with one of the suites de luxe specially fitted for his accommodation. The intention was that she should be used as an Imperial yacht to receive the surrender of the Allied fleets, but things did not turn out as he had expected and her first trip to sea was across the Humber. Eventually she was bought by the Canadian Pacific Line and as the *Empress of Australia* was well known both on the transatlantic and transpacific services.

A particularly interesting vessel was launched by Scott's of Greenock in the Anchor Liner *Transylvania,* which was intended to be an experiment for the whole of the Cunard group. She was much bigger than the other ships of the company, 14,315 tons gross with a speed of 16 knots, and she was designed to be interchangeable between the Cunard and Anchor services as required. Her principal interest is that she was the first liner fitted with geared turbine machinery, a somewhat daring experiment which caused her engines to be so designed that they could be altered back to more normal practice if necessary. Happily they proved to be a great success during her short life, although she was unfortunately torpedoed on government service.

Another particularly interesting experiment which never fructified was planned by the Cunard people in conjunction with Messrs. Beardmore, the well-known Clydeside shipbuilders. At that time the theory of electric propulsion at sea was attracting a good deal of attention, but these two leaders of British thought intended to take it beyond the theoretical stage and planned a 16,000-ton liner with electric machinery, the current being generated by Ljungstrom turbines. The plans were completed and a very interesting ship she was, but as soon as war broke out the British authorities forbade any sort of experimental shipbuilding since they wanted to conserve all the resources of the country for the Navy. Eventually the ship was built after the war under the name of *Tyrrhenia,* an awkward name which was soon changed to *Lancastria.*

The outbreak of war stopped for a few years the development of an extraordinarily interesting class which was planned by the Canadian Pacific Line on the Saint Lawrence run, the cabin class which revived the old idea of a "second class only" ship such as the Cunard had built for the Boston service in the nineties. The old Beaver ships *Lake Champlain* and *Lake Manitoba* were at the end of their days and the directors of the company considered that for their particular trade to Canada the cabin-class passenger demanded something better than an obsolete first-class ship which was so old that her owners dared no longer to ask first-class fares for her. Accordingly an entirely new class was designed for the accommodation of the cabin passenger.

The first two ships of this class were the *Metagama* and *Missanabie* which were ready for service soon after the outbreak of war had broken up the Canadian trade. Although only roughly second-class fare was charged for their accommodation, they were ships of about 12,000 tons with a speed of 15½ knots, their capacity being 520 cabin and 1,100 third-class passengers. They were rather heavy-looking vessels with two funnels between two masts and rather ugly cruiser sterns, but they were of excellent value and soon gained their circle, while the Admiralty appreciated the fact that they made something like the ideal transport. The *Missanabie* was torpedoed and sunk while on trooping service.

The success of the Unione Austriaca Company naturally caused a lot of popular regret that the principal financial interests were in the hands of the North German Lloyd and Hamburg American companies. In April, 1914, therefore, they came to an agreement with the Austrian Government by which certain Austrian banks bought out the German interest, thereby providing means of raising new capital, but an agreement was reached whereby the company acted as Austrian agents for a number of transatlantic lines.

When the Norwegian American Line started, there was some doubt as to how it would succeed, but the first few months of working showed that there was no foundation for this, and by the spring of 1914 it was in a position to order a third steamer and to increase its capital from £333,000 to £555,000.

Shortly before the outbreak of war the National Steam Navigation Company of Greece laid down two fine ships at Cammell, Laird's yard at Birkenhead. They were intended to be mainly emigrant carriers, and with a gross tonnage of rather less than ten thousand had rather a small carrying capacity but large accommodation and a speed of seventeen knots. Like all foreign orders taken by British yards, they were suspended when the whole shipbuilding power of the country was needed by the nation. The *Vasilissa Sophia* was completed by the Shipping Controller in 1917 and named *Leasowe Castle* for transport purposes, on which she was soon torpedoed by a German submarine, but the *Vasilefs Constantinos* was left uncompleted in the builders' yard and was finally finished in 1920 as the *Megali Hellas* under her original ownership, although for most of her career she bore the name *Byron.*

On May 29, 1914, occurred a tragedy which was second only to the loss of the *Titanic,* when the Canadian Pacific *Empress of Ireland,* creeping down the Saint Lawrence in a fog, was struck by the heavily laden Norwegian tramp *Storstad* and sank in a few minutes. The tragedy took place off Father Point and in this connection a curious story is told. Captain Kendall of the *Empress of Ireland* had been in command of the emigrant steamer *Montrose* when he detected among his passengers the escaping murderer Crippen. He informed the authorities by wireless, detectives crossed by a faster ship and when the *Montrose* stopped to take her pilot at Father Point, they boarded her and arrested Crippen. As he was taken over the side he turned and dramatically cursed Captain Kendall. The *Empress of Ireland* was sunk within a few yards of the same spot, but the curse was not quite powerful enough, for being a powerful swimmer the commander was among the saved although 1,023 lives were lost, 817 passengers and 206 in the crew. The high proportion of passengers lost was due to the fact that the disaster occurred in the early morning, when nearly all of them were below in their bunks, and the ship filled so rapidly that there was little chance for them to seek safety.

Then came the War, and immediately every calculation and reckoning concerning the Atlantic services and its ships was upset.

In the few days which preceded the outbreak of war, when the situation was tense and when the outcome was practically beyond doubt, German merchantmen were given every facility to escape to their home ports, but on the other hand every obstacle was set in the way of British ships getting away from Germany and eighty were finally detained with their crews. Most of the ships so captured were of no great importance, and their number did not include any Atlantic liners.

The first anxiety for those connected with Atlantic shipping was the problem of the armed merchantman. At the second Hague Conference, Great Britain, Japan and the United States had agreed that armed merchant cruisers could only be armed and commissioned in their own ports, but Germany stood out for freedom of action and maintained that ships could be commissioned as auxiliary cruisers on the high seas or anywhere else that suited their convenience. Unfortunately Germany was able to stick to her point in the dispute and as many of the ships which she had specially subsidized for cruiser purposes in war time were at sea or abroad, French and British merchantmen found themselves in the greatest danger.

The German authorities sent out wireless warnings to their ships on July 29th and they got back to port as quickly as they could. The *Friedrich der Grosse* slipped back to New York without lights, followed by several other big vessels, while those who were already safe in American ports made preparations for a long stay.

The most exciting escape was that of the North German Lloyd Liner *Kronprinzessin Cecilie* which was at sea with two million pounds worth of specie on board which would have added greatly to her already enormous value as a prize for any British cruiser. She was nearing the European side when her captain received news of the outbreak of war by wireless and instructions to return to America with all the speed that her coal would permit. She broke her own westward record in doing so and arrived in safety at Bar Harbor, Maine, where she remained, a great embarrassment to the American authorities, until the Allies gave her a safe conduct to Boston.

On the Allied side the Cunard *Lusitania* and the Compagnie Générale Transatlantique steamer *La Lorraine* were impatient to be off, and in spite of the doubt as to the position of several German ships they sailed the day after war was declared, trusting to their speed to get them safely to port. Needless to say, the air was thick with rumors of their capture and destruction, many going so far as to hear gunfire through the night, but they got through in safety. The *Mauretania* was ordered by wireless to turn aside to Halifax, but the White Star *Olympic* completed her journey to New York. Other ships of less importance contrived to reach their destinations on either side of the Atlantic without incident, although of course the excitement was intense.

At that time, Germany only had 2 regular naval cruisers in the North Atlantic, the *Karlsruhe* of 1912, a ship of 5,500 tons with a maximum speed of nearly 27 knots and a battery of 12 4.1-inch guns, and the rather older *Dresden,* built in 1907, with a displacement of 4,520 tons and a speed of 24 knots. Her armament consisted of ten 4.1's. Against these the principal British force consisted of old armored cruisers of the "County" class, ships of just under ten thousand tons with a speed of twenty-three knots at their best and an armament of six-inch quick-firers. There were not enough of them and they were not fast enough for their work, but they maintained a cordon as well as they could and also provided for the possibility of the battle cruiser *Goeben* and the light cruiser *Breslau* breaking out of the Mediterranean into the Atlantic instead of turning East to Turkey as they actually did.

Neither of these cruisers did any real harm to the North Atlantic service, although naturally their existence caused considerable confusion. The *Dresden* worked principally against the South American routes, sinking a number of River Plata food ships. The question was whether she would turn north and interrupt the United States grain lane, but eventually she turned south and later joined Admiral von Spee, to be destroyed on the Chilean coast after the Battle of the Falklands. The *Karlsruhe* was different and gave the British naval authorities infinite anxiety by her success in keeping her movements screened. She worked slightly north from the West Indies, but although she intercepted a number of cargo ships and South American liners, sinking fifteen, utilizing one and converting another, she did not get into touch with the valuable Western Ocean liners. Finally she was sunk by an internal explosion, the remnants of her crew reaching home through the blockade in a prize steamer.

The outbreak of war presented the opportunity of testing the various subsidizing schemes which had cost the maritime powers many millions in peace time. Atlantic liners were the favorite ships to be regarded as a reserve for the Navy on account of their size and speed, and in peace time the question never appears to have been seriously raised as to whether they were really suitable for the purpose or not. There was plenty of criticism of the whole principle of armed liners but it was always to condemn them as a whole, not because of any individual type.

The Germans had taken the subsidizing system further than anybody else and the operations of their auxiliary cruisers were an integral part of their elaborate war plans. The rumored armament reserved for each of the crack North German Lloyd ships in their home ports consisted of eight 5.9-inch guns, four 4.1's, two 3.4's, two 6-pounders and fourteen machine guns, while in addition they could carry two steam picket boats under their davits, carrying torpedoes in dropping gear. This latter part of the program was already reported to have been dropped, but it was fully expected that a certain number of ships would be able to put to sea with the armament reserved for them. In fact, there were innumerable rumors that they always carried the guns concealed on board, although it was not explained how they contrived to do this in face of the thoroughness of the American customs examination.

So many of these big liners which were specially earmarked as being peculiarly suitable for conversion in war time were on the American coast when war broke out that it was only natural that the naval authorities should be anxious as to how many could be released to prey on British commerce. Of the ships in American ports only the *Kronprinz Wilhelm* of the North German Lloyd contrived to slip out on the eve of war, before the American neutrality arrangements could function properly. She met the cruiser *Karlsruhe* in the West Indies and took from her what guns and gunnery ratings could be spared, not many for the purpose. His Majesty's cruisers *Suffolk* and *Bristol* came on the scene just when the transfer was being completed, but they centered their attention on attempting to corner the cruiser, which was far too fast for them to catch in any circumstances, and the liner succeeded in slipping away while they were so engaged.

The *Kronprinz* was very weakly armed, and her gunnery was soon proved to be extraordinarily bad, but she was working against unarmed merchantmen and anything was really sufficient. She intercepted the Houlder liner *La Correntina* from the River Plata, which was one of the food ships which had been experimentally fitted with two 4.7-inch guns aft. Had she also been given ammunition she could have given the raider a very lively reception, but as it was, through some muddle the shells which were destined for her were turned back and she was absolutely helpless before the *Kronprinz's* little quick-firers, her two guns being taken and mounted on the deck of the raider to give an extra impression.

The *Kronprinz* soon discovered that her great handicap in operating against commerce was that she burned so much coal that she was constantly finding herself in danger of being run down by cruisers with a very much slower speed. A few German ships contrived to get away with supplies for her, but otherwise she had to rely on the bunkers and cargoes of captured steamers, and coaling a first-class liner at sea is no easy job and almost invariably attended by structural damage. Also, it was impossible to give her machinery the nursing at the end of each voyage to which it was accustomed, with the result that after an eight months' cruise which ended in eight ships being sunk, she crawled into Newport News with her machinery in a shocking condition and was interned. The fact that she was able to stay at sea as long as that was a fine tribute to her engineers.

The famous *Kaiser Wilhelm der Grosse,* the ship which won for Germany the Blue Ribbon of the Atlantic in 1897, was the only one of the elaborately organized subsidized fleet to cruise on anything like the lines laid down by the theorists in peace time. She was hurriedly fitted out in Germany but was given quite reasonable armament and with a naval crew she worked up the Norwegian coast and did not turn westward until she had reached high latitudes. The Tenth Cruiser Squadron, which was later to maintain the Atlantic blockade in these northern waters, was not yet organized and she had no difficulty in getting through. She sank a trawler off the coast of Iceland and then turned south to operate round the Western Islands. She intercepted a big South American and a Cape liner, both of whom had women passengers on board, and both of whom were treated with every courtesy and allowed to proceed. Her total bag was two ships sunk and two released when, on August 24th, she was discovered off Rio de Oro, the Spanish colony on the West African coast. She had three colliers with her and had already outraged Spanish neutrality in spite of repeated requests to leave. The work of getting coal into the ship by this means was slow, nearly as bad as coaling at sea, and she was literally tied by the heels when the obsolete British cruiser *Highflyer,* used as a cadets' training ship but still mounting eleven six-inch guns, waddled in from the sea. The *Kaiser Wilhelm* refused to quit territorial waters — it is doubtful if she could have done so had she wanted to — so that the captain of the *Highflyer* had no alternative but to sink her. The value of the ships and cargoes which she had destroyed was placed at four hundred thousand pounds, but her career was too short to do the great indirect damage that was frequently the result of the operations of these raiders.

Their work was, in fact, out of all proportion to the value of the property actually destroyed. The sea is big and the odds are always on the attacker, so that a single raider may call for the attention of huge cruiser cordons when they are urgently wanted elsewhere and still have a very good chance of slipping through. The cost of maintaining such patrols is colossal, so that their indirect influence can be very great, although their actual work in the purpose for which they were intended was proved by the war to be most disappointing.

Their size prevented their use of many small harbors which would have been welcome shelter to carry out readjustments and coaling operations, and they were constantly sustaining damage by coaling at sea.

Great as they were, their indirect results would have been infinitely more had it not been for the War Risks Insurance Plan. Coöperative societies among the shipowners had been functioning in the war-risk market for several years, but no general risk of this sort had been considered until shortly before the war. Then arrangements were made, but they had not been nearly concluded when matters became serious. With praiseworthy promptness the Government cut the red tape and on July 31st agreed to put the suggestion into operation, taking eighty per cent. of the risk.

The result of this prompt action was that there was no hold-up of shipping on financial account, particularly in the North Atlantic, and even the most successful phases of the Germans' surface war on commerce were disappointing in their result. At the same time arrangements were made with the shipowners to accept Admiralty routine schemes which reduced the number of casualties considerably. It was satisfactory as far as it went, but the Admiralty and the Mercantile Marine should have been in close liaison many years before, as they were in Germany, when many millions of pounds might have been saved the country and the commercial community.

In the meantime, the naval value of the big Atlantic liners had been tested in another direction, a direction in which they proved themselves an unqualified success. Far from the selfish attitude on which the Germans relied, Canada rose to the defense of the Mother Country as one man, and a magnificent contingent of the finest men of the Dominion was ready for transport to France in a remarkably short space of time. This first Canadian convoy included a very large number of first-class Atlantic liners and was the first movement of troops on such a scale.

The British Admiralty contrived to keep its route a very close secret, and while it was heading for Liverpool round the south coast of Ireland the North German Lloyd liner *Berlin* was being commissioned and sent out to lay a mine field off Tory Island on the north coast of Ireland, the information obtained by the Germans being that the convoy was to take that route. At first sight the *Berlin,* with her gross tonnage of seventeen thousand and her speed of seventeen knots, would appear to be slow for the purposes of an auxiliary cruiser, yet her raid was far and away the most successful naval operation that the big German liners carried out. She was well armed for the ordinary purposes of the commerce destroyer, and at the same time her original construction permitted a very long after deck to be utilized for the laying of mines. On her first attempt to slip through the cordon she sighted a number of British men-of-war and turned back in a hurry, but on October 14th she sailed again, worked up the Norwegian coast, escorted by submarines, and then struck out across the north of Scotland. She had two thousand mines on board and on October 22d and 23d she laid a big field off Tory Island. The Canadian convoy took the other route, but there was other game. Her first victim was the *Manchester Commerce,* owned by Manchester Liners, Ltd., but for some unknown reason that casualty, revealing the field, was not reported to the commander-in-chief and next day she got the biggest bag of the war, His Majesty's battleship *Audacious.* The White Star *Olympic* made a gallant attempt to tow her to a repairing base, but she was too badly damaged. The effort to keep the disaster secret when hundreds of the *Olympic's* passengers had seen just what happened was one of the British Navy's biggest war blunders and rendered all Admiralty statements suspect abroad. This mine field proved particularly difficult to limit and sweep up, but in the meantime the *Berlin,* her work well done, raced back to Trondjhem with her machinery badly strained and was interned for the duration of the war. The fact that she was capable of only eight knots shows another weakness of the auxiliary cruiser when it is not possible to nurse her engines.

If the German auxiliary cruiser system was on its crest when war broke out, the British Royal Naval Reserve was no less so. The majority of its ratings were in the best ships, particularly in the liners on the Atlantic Ferry, for the honor of flying the Blue Ensign instead of the Red was keenly sought after and admission into the Reserve was sufficiently difficult to ensure the men being of the steadiest and most reliable type. The result was that when mobilization was ordered, the Atlantic ships were denuded of a large proportion of their usual crews just when they were wanted most, the route across the Western Ocean being of particular national importance on account of the movement of gold.

It was not sufficient for the authorities to employ the greatest possible care and sympathy in calling up the men, as they certainly did, for the task was too colossal to be carried out in that way by the staff available, so that while the Royal Naval Reserve ratings were proving their worth beyond a shadow of a doubt in the older British men-of-war and in the armed liners that were commissioned, their places were filled in the Mercantile Marine by others who were equally willing and equally patriotic, but who naturally lacked the polish of the old Western Ocean hand. Many amusing stories are told of conditions on board the liners until things had settled down.

Most of the ships which the Government wanted for naval service were chartered, generally at the rate of about one pound per gross ton per month, but some were bought outright. Most of the ships which were bought outright in the early days were filled with cement and used for blocking harbors, but the famous old *Campania,* which had just been sent to the scrappers' yard, was rescued by the Admiralty and sent to sea as an aircraft carrier, undergoing many changes of appearance to fit her for her duties with the Grand Fleet. In spite of her age she proved a most useful ship in this capacity, taking part in all the periodical sweeps of the North Sea and being the only ship of her type present at Jutland, but was sunk after a collision with a man-of-war in the Firth of Forth on one of the last days of the War.

It is impossible to go into the war experiences of each individual ship. It was not long before the navies of both sides were convinced that they had made a big mistake in spending so much money on subsidizing the biggest express ships. Just as the fleet *Kaiser Wilhelm der Grosse* fell victim to the waddling old *Highflyer* when tied by the heels through lack of coal, so the British Navy found it quite impossible to keep the *Mauretania* and *Aquitania* in bunkers, and thousands of pounds' worth of damage was done by ripping out their accommodations. Later they proved absolutely invaluable as transports and hospital ships.

Apart from the giants, the British liner fleet proved invaluable to the Navy. Quite a number were commissioned as auxiliary cruisers, the standard armament being eight six-inch guns, and the Tenth Cruiser Squadron which maintained the mid-Atlantic blockade was, after the first few months, composed entirely of ships of that type with the Admiral's flag flying in the Canadian Pacific *Alsatian*. They proved themselves more seaworthy than the obsolete cruisers that were all that the Navy could spare for their duty, and able to stay at sea for longer periods. Also they kept their crews in infinitely better health. But they were not fighting ships in any sense of the word and they proved conclusively that merchantmen never can be.

As the German Mercantile Marine virtually ceased to exist with the War, to have a renaissance after it unequaled in shipping history, it is worth while to mention the war adventures of some of their well-known Atlantic ships.

To take the Hamburg American Line first. Of their giant ships the *Imperator* was in Hamburg when war broke out and was naturally kept there in safety for the whole period of hostilities, although such a long period laid up, with few men available for maintenance purposes, meant that she was seriously deteriorated when she put to sea again. The *Vaterland,* on the other hand, was in New York and was naturally too valuable to risk as an auxiliary cruiser, even if it had been possible to equip her. So she lay alongside her pier at Hoboken until the United States came into the struggle in 1917, when she was seized and commissioned as the United States transport *Leviathan,* Number 1326, with a complete naval crew. She was armed with eight fifty-caliber, six-inch guns, two one-pounder pom-poms and two machine guns, an armament which excited the envy of the British troopers who generally had to be content with a single gun, and was ready for commissioning on July 25, 1917. Her emigrant spaces and roomy 'tween decks proved very easily convertible into troop spaces, and she was fitted with the maximum of regard for the health and comfort of the soldiers she was carrying. She proved herself capable of transporting no less than ten thousand troops at a time, although such a large company was only occasionally attempted.

The *Amerika* was seized at Boston and commissioned as a trooper under the Anglicized name of *America,* receiving two six-inch guns less than the *Leviathan.* The *Cincinnati* was also at Boston and became the United States transport *Covington,* being torpedoed in June, 1918. Her sister the *Cleveland* was safe at Hamburg, but after the surrender she saw temporary service as the United States transport *Mobile.*

The *President Grant* and *President Lincoln* were far too appropriately named for the United States Government to attempt to rechristen them, but they both did very useful work. The latter, unfortunately, was torpedoed on May 31, 1918. The *Pennsylvania* became the *Nansamond,* principally on store service, and carried two six-inch and two three-inch guns; her sister the *Patricia* remained in Hamburg and as she was already fitted as a transport was kept ready for service should she be required.

The *Prince Joachim,* armed with one six-inch and one three-inch gun, became the *Moccasin,* carrying chilled meat for the United States troops. The *Allemania* became the *Awasco,* carrying stores, and was torpedoed in December, 1917.

The *Hamburg,* which had been used by the Kaiser as an Imperial yacht, deserves special mention, as she was taken up at New York by the American Red Cross Society and under the name *Red Cross* was equipped with a dozen hospital units for the relief of the suffering in Europe, quite irrespective of nationality. It was a splendid gesture of American humanity and the Allies agreed to respect her neutrality. She first called at Falmouth, then at Bordeaux, and finally at Rotterdam to land her units for Germany, afterwards returning to New York and laying up again. The United States Government seized her with the other German liners and commissioned her as the *Powhatan* for trooping, arming her with four six-inch guns and four quick-firers. When the *Konig Wilhelm II* was seized she became the *Madawaska* and proved an excellent trooper.

Of the ships which were safe in Germany when war broke out the most interesting is the *Victoria Louise,* the cruising yacht which was originally the record breaker *Deutschland.* When the North German Lloyd *Kaiser Wilhelm der Grosse* put to sea the *Victoria Louise* also was armed and commissioned with a naval captain. Apparently this work was done under the impression that she was still capable of her twenty-two knots, although she had been deprived of a proportion of her boilers when she was converted for the cruising business. When this was discovered she was immediately paid off again, and apparently there was a good deal of trouble for the officials in the naval department who had not kept a record of the change.

The *Kaiserin Auguste Victoria* was safe in Hamburg and remained there unemployed throughout the hostilities, as did also the *Furst Bismarck.*

The Germans always had hopes of being able to invade the British coast, and fitted out a number of Hamburg American liners as transports in order that they might be ready should the opportunity offer. Some of these were employed in the 1917 Baltic operations against the Russians, but the majority of them were left idle until the Armistice. The *Konig Friedrich Auguste, Pretoria, Graf Waldersee, Batavia* and *Bermuda* were treated in this way.

The *Belgravia* was fitted out as a raider on Allied commerce and was to have been sent to sea as the *Wolf II* when that particularly successful corsair had returned, but she was too late for the service. The *Dania* was one of the ships converted into what were known as barrage breakers, being made as unsinkable as possible and intended to be sent ahead of the fleet to keep the passage clear of mines, if necessary destroying them with their own hulls. The ships are reported to have been manned entirely by seamen in the second class for conduct. The *Brandenburg* saw useful service as a depot and distilling ship at Danzig while the *Furst Bulow* carried seaplanes in the Baltic.

The *Kronprinzessin Cecilie,* not to be confused with the North German Lloyd express ship already mentioned, was captured by Britain at the outbreak of war and commissioned as the naval auxiliary *Princess,* while the *Bethania* was captured by the cruiser *Essex* and renamed *Parisian* for naval service. The *Moltke* took refuge in Genoa when war broke out and when Italy joined the Allies she was commissioned as the *Pesaro.*

The North German Lloyd was not so lucky as the Hamburg American in having a large proportion of its fleet in German ports when war broke out and it suffered accordingly. When the United States entered the war in 1917 the interned *Prinz Eitel Friedrich* was commissioned as the cruiser transport *De Kalb* while the *Kron-*

*prinz Wilhelm* became the *Von Stuben* on similar service, but they had been so badly damaged and their engines had suffered so severely when they were raiders that it was some time before the United States Navy could make full use of them. The refugee *Kronprinzessin Cecilie* was converted into the United States transport *Mount Vernon* but in her case no great damage had been done.

The company, with its vast tonnage, gave the United States some splendid cruiser transports that were badly needed. The *Rhein* was seized at Baltimore and employed. The *Neckar* at the same port became the *Antigone* and was armed with four five-inch guns. At New York the *Prinzess Irene* became the *Pocahontas* (four six-inch guns), the *Kaiser Wilhelm II* became the *Agamemnon* (four six-inch, two three-inch), the *Grosser Kurfurst* became the *Aeolus* (four five-inch), the *Friedrich der Grosse* became the *Huron* (four five-inch) and the *Barbarossa* became the *Mercury* (four six-inch). Like the two Hamburg American *President* liners, the *George Washington* had a name which was far too appropriate to change but only four five-inch and four small quick-fires could be spared for her armament, not a very large one considering her importance.

The *Konig Albert* was caught at Genoa and became the Italian hospital ship *Fernando Palastiano* when Italy joined in the war. At Antwerp there were the *Gneisenau* and *Main*. The former was seized by the Belgians and scuttled when the Germans approached the town. She was salved and used as a depot ship but just failed to get away before the evacuation. The *Main* was not damaged much by the Belgians and contrived to get into Dutch waters just before the Armistice, only to have to surrender immediately afterwards. The *Prinz Friedrich Wilhelm* sought refuge in Odde and later contrived to slip back to Germany.

The ships taken up in Germany and prepared as transports after the same fashion as the Hamburg American already described were the *Bremen, Chemnitz, Cassel* and *Frankfurst,* but they were not used.

In addition to the ex-German cruiser transports which the United States Navy seized from Germany, they made full use of the ships of the American Line, renaming them to avoid confusion as in the case of the Spanish American War. The *Philadelphia* was renamed *Harrisburg* and armed with two six-inch, two four-inch and four small guns, the *New York* was rechristened *Pittsburg* with three six-inch, two three-inch and four small guns, but the *St. Paul* was left to her owners.

The French Navy had always regarded the fine ships of the Compagnie Générale Transatlantique as its first reserve and it made full use of them. *La Provence,* renamed *Provence II* to avoid confusion with the battleship, and *La Touraine* were the first to be armed and put in the Channel patrol to help protect the communications between England and France. The latter was not a success and was returned to the mail service, whose terminal was moved from Havre to Bordeaux, but the former remained with the Navy, patrolling and trooping in various areas. *La Navarre* was on similar service and wrecked her boilers at it. *La France* became *France IV* and was a trooper and hospital ship in the Mediterranean, finally carrying American troops. *La Champagne* was commissioned only for a short time, was returned to the company and was wrecked in 1915. *La Lorraine* became *Lorraine II* as a cruiser transport; *La Savoie* retained her original name on the same service.

The German liners were not the only ones that had narrow escapes. One of the narrowest occurred at Antwerp, when the Canadian Pacific *Montrose* was lying side by side with the *Montreal*. The *Montrose* had no coal board, while the *Montreal's* engines were taken down for repairs. The rapid advance of the German forces on the Belgian port would have justified Captain Kendall, who was then marine superintendent there, in abandoning the ships, but he had no intention of doing that and, laying the *Montrose* alongside her consort, he transferred to her as much of the *Montreal's* coal as he had time to move. Then, just before the Germans arrived, he crowded both ships with refugees and got them across to England in safety, the *Montreal* in tow.

The *Montrose* did not last very long, in spite of his gallant effort, for the Admiralty bought her and eight other Canadian Pacific ships for various purposes, her fate being to be filled with cement, surmounted by a complicated bridge work and sunk in Dover Harbor to narrow the entrance against submarines and torpedo craft. At the very end of 1914, however, in the force of a tremendous gale, she blew from her moorings, passed out of the narrow entrance to the harbor by some miracle and then blew along the coast. At that time the Downs were crowded with shipping sheltering, but she contrived to thread her way through them all, finally piling herself up on the Goodwin Sands, where her remains were to be seen long after the war.

Naturally enough, there was little enough passenger traffic when the first homeward rush was over, and what there was went to the neutral ships whenever possible. Until 1917 the Atlantic ships of the International Merchant Marine, and throughout the war those of the Holland American, Norwegian American, Swedish American and Compañía Trasatlantica line made huge sums out of their passenger accommodation, but even with very strict government control of freights the British Atlantic companies did very well out of the cargo stowage of such ships as were left to them, both with munitions of war and foodstuffs.

The huge market for American grain among the Allies caused such efforts to be made by the growers that by January, 1917, the European nations discovered that they could get nearly as much grain as they wanted from America, saving the long journey from Australia. This was obviously a great advantage, for at that period every ton of shipping was urgently needed, and caused a concentration of ships which were normally employed on the longer routes on the North Atlantic. Many of these were passenger ships and although the entry of the United States into the war soon afterwards caused a great demand for troop accommodation, such few passengers as wished to travel found very ample space for their requirements, for most of the ships were sailing with only a small proportion of their accommodation occupied. Considering the shortage of stewards this was something of a godsend.

But even commercial relations between Britain and the United States did not run smoothly. The principle and conduct of the blockade caused a lot of ill feeling in the United States until they entered into the struggle, realized its necessity, and became the most efficient blockaders of all. And there was the question of arming merchantmen, which also threatened to cause friction.

By the beginning of 1915, it was obvious that British merchant ships would have to be armed if the Germans' campaign against commerce was to be countered in any way, but the attitude of the United States Government towards armed merchantmen still caused apprehension. It had been clearly laid down at the beginning of the war that every case should be treated on its merits, but the Washington authorities were so careful to preserve a strict neutrality that there might easily have been fatal delays while they were investigating. By July, 1915, two hundred and fifty British merchantmen had been defensively armed, in each case the guns being placed right aft as a sign of their defensive nature only, and also because it was found that for their purpose they were far more effective there. Many of the guns were almost useless, and in consequence of the numbers being short they generally had to be changed at Gibraltar or some such port and mounted through the most dangerous area only. Ships so armed tried to keep away from American ports, but occasionally they had to be diverted there, and there was always the possibility of trouble. The White Star *Adriatic,* suspected of intending to call at Halifax for troops, had a lot of trouble before she satisfied the authorities and as late as September, 1915, the steamer *Waimana* was forced to land her guns before she was given clearance from an American port.

Immediately after this incident, however, the United States Government changed its attitude and gave permission for defensively armed ships to clear from American ports if the purpose of the guns was unmistakable, and only Holland stood out against the practice. This was natural on account of the proximity of Germany and the difficulty of defending her territory should she offend her neighbor.

By December, 1915, no less than seven hundred and fifty British ships of all types were armed and there was an acute shortage of guns, which was rectified by large orders in the United States. German submarines had obtained a wholesome respect for a merchant ship's gun, even when its crew was almost entirely untrained, and knowing this, the captain of the Leyland liner *Nicosian,* unable to obtain a real gun, mounted a wooden "quaker" in the most conspicuous position aft and made the submarine attacking him hold off until assistance arrived and his ship was saved.

The manner in which German submarine construction improved, and the resistance given by their double hulls, made the twelve-pounder gun which was originally regarded as something like the ideal quite useless before the war had been on for very long. Nevertheless shipping had to be content with what it could get and frequently valuable ships were at sea not only with twelve-pounders but with anything that would fire, down to a two and a half-pounder. At the other end of the scale a six-inch gun firing a shell weighing one hundred pounds was ideal for fighting purposes, but the projectile was too heavy to be easily handled by the small crews available. Russian, Japanese, American and even South American patterns were mounted, many of them too badly worn for accurate firing, but the ammunition supply made a heart-breaking problem. Finally it was decided that the ideal gun was a 5.5-inch weapon, firing an 80-pound shell, and no less than 1,100 were ordered, a large proportion from American establishments. Unfortunately they were not ready when the Armistice came, but the weapon has since proved itself an extremely useful gun for anti-torpedo purposes.

In addition to these guns a number of ships were built with short-range 7.5-inch howitzers, which not only proved very effective against submarines but the effect of the fire of the bigger pieces on more than one occasion saved a ship through the explosion deflecting the torpedo. Smoke-producing apparatus also proved very helpful in defending merchantmen.

On March 13, 1917, when negotiations with Germany had been broken off but before the United States was at war, the authorities at Washington had issued regulations for the defensive armament of United States' ships which showed that the necessity for this was then fully appreciated. These regulations started with a declaration that it was a protection against submarines of Germany or any other nation and gave the armed guard the right to fire at any submarine within four thousand yards, whereas the British regulations only permitted the defensive armament to be used if an actual attack had started. A naval officer commanded the armed guard and was there for military duties only, the ratings also confining themselves to the care of the gun and messing together at the expense of the shipowner. On the other hand, it was expected that the mercantile crew of the ship should supplement them in the handling of ammunition, etc.

When the United States started to arm its ships on the North Atlantic it was very much better off for guns than the British, and mounted them forward as well as aft. But it was soon found that this was not advisable, except in the case of auxiliary cruisers, where of course an all-round fire was necessary. The main object of a merchant ship was to deliver her cargo and the armament was only given her to permit this, not to fight her country's enemies. Flight was the best means of attaining this object and if the guns were mounted at the after end of the ship only her captain had every reason to do this, whereas if they were forward he would always be tempted to strike for his flag.

With these regulations the United States' authorities issued a very important declaration: "Enemy merchant ships have the right to arm for the purposes of self protection."

But no arming of merchantmen could give them the protection that was essential, and something more was needed. By 1917 the submarine losses had become so serious that the adaptation of the convoy system, which had been repeatedly urged in certain quarters, became absolutely essential. The principal objection to its introduction was that the naval officer feared that the Mercantile Marine man would be unable to keep station with the degree of accuracy necessary when a large number of ships were steaming in company, but this fear proved to be absolutely unfounded and it was the Navy's admiration of the ability of the Merchant Marine officer in this direction which had a lot to do with bringing the two services closer together.

At the beginning of the year, convoys were started on the European routes, but on the Atlantic ships continued only to be supplied with sloop or destroyer escorts through the danger area, an area which was, unfortunately, constantly changing. In this way the losses were appalling and in May, 1917, experiments were carried out with transatlantic convoys, the United States authorities coöperating enthusiastically. So successful did they prove that regular eastward convoys were immediately established and westward in the following month. At once a great drop in losses was conspicuous, ninety-nine per cent. of the ships getting through in safety.

On the other hand there were very serious disadvantages to the system from the supply point of view, for the speed of a convoy was limited to the speed of its slowest ship, while the arrival of such a fleet meant congestion at the docks. Voyages were thus lengthened by roughly twenty-five per cent., but the pooling of the various companies' resources resulted in a great acceleration of the turn-round. As there were not enough men-of-war to undertake the duty, a number of armed liners were made responsible for the safety of the convoy, senior merchant service captains acting as commodores.

At the same time there occurred an event which, as it had no direct bearing on the war and therefore passed almost unnoticed at the time, was to have such an immense influence on the post-war history of Atlantic travel that it deserves special mention — the first definite step towards the strict restriction of immigration into the United States.

One of the first things that was proved without a doubt by America's entry into the war was that the system of unrestricted immigration which had held for so many years would have to go, for there were numerous European colonies within the United States which had not been absorbed into the country at all and which could not be relied upon in a national emergency. That was one point of view; the other was that the flow of emigrants from Southern Europe, particularly Italy, which had started comparatively recently, had come without the least intention of becoming Americanized in any way, but only wanted to earn what they could in the land of promise and then return to their native country to spend the evening of their days in comfort on their savings, a policy which may be picturesque enough but which meant a very serious drain on the resources even of a country like the United States.

The Dillingham Act permitted the entry each year of three per cent. of the population of the country, based on the 1910 census. Italy protested unofficially but could not take the matter too far, as the rights of the case were obvious and the Act was certainly needed. Unfortunately, it was carelessly drafted, and although it provided heavy fines for any ship which landed its quota too early or too late, or transgressed the Act in any way, no provision was made for adequate immigration depots or coöperation with or between American consular officers abroad.

Had the Act been passed in peace time it would have been disastrous to the shipping companies; as it was, only comparatively few lines were affected. The Scandinavian and Dutch emigrants would be within the quota if every berth in their ships was booked up, but the Greeks were in a different position and soon after the passing of the Act the Embiricos steamer *Themistocles* crossed the Atlantic with one passenger in the first class, twelve in the second and twelve in the steerage. It was provided that the Act, which was known as the Dillingham Immigration Restriction Act, should last until 1924, when it was revised in the light of experience and made infinitely more effective.

German shipping had been completely swept from the Atlantic, but the dramatic appearance of the cargo submarine *Deutschland* at Baltimore in the summer of 1916 showed that the Germans were not inclined to take the blockade lying down and that they intended to use every possible means to break it. Her construction was due to the enterprise of the North German Lloyd, who had in November, 1915, formed a concern known as the German Ocean Shipping Company with a capital of two million marks under the management of Herr Carl Stapelfeldt, who was on the board of the Lloyd. Germany badly wanted American cotton, the blockade was becoming more and more effective, and German interests in America, to say nothing of the propaganda which she was carrying out there, were suffering badly from the difficulty of transferring funds. The German Ocean Shipping Company therefore approached Krupp's Germania yard at Kiel with the idea of building a cargo submarine, and in spite of the fact that all their efforts were centered on building submarines and destroyers for the German Navy, the Admiralstab quite saw the advantage of opening communications with America and gave them permission to lay down the requisite ships. Eight in all were built, but the only ones to sail were the *Deutschland* and *Bremen*.

The former was built and engined at the Germania yard; the latter's hull hailed from the Flensburg yard with Krupp's engines. Their submerged displacement was roughly nineteen hundred tons, then bigger than any submarine afloat; their bunkers were sufficient for the double journey across the Atlantic, and in addition they had stowage for about 750 tons of cargo. The crew numbered twenty-nine, former German naval ratings under the command of

Captain Paul Konig, one of the smartest of the younger commanders of the North German Lloyd.

The *Deutschland* arrived off Baltimore on the morning of July 8th and so successful had her owners been in keeping their intentions secret that her arrival caused a tremendous sensation and the pluck of her people aroused the greatest enthusiasm in the United States. Loaded with cotton and rubber, she arrived back at the mouth of the Weser on August 23d.

What happened to her sister ship the *Bremen* will never be known; she sailed from Germany but nothing further was heard of her fate. At roughly the position in which she ought to have been, His Majesty's armed merchant cruiser *Alsatian,* formerly a Canadian Pacific liner and flying the flag of Admiral Sir Reginald Tupper as admiral commanding the Tenth Cruiser Squadron, hit some heavy obstruction and there is every indication that she had rammed and sunk a submarine. The *Bremen* was her most likely victim but nothing definite is known. In October the *Deutschland* made another successful transatlantic passage, this time to New London, Connecticut, arriving home in December, and then laid up for the winter. When the United States came into the War she and the sisters, which had been completed, were taken over by the German Navy as their first cruiser submarines, but they were very awkward to handle, most unpopular with their officers, and not at all successful in work for which they were not designed.

Apart from this, one of the most dramatic moves of the German submarine war was the sudden appearance of the submarine U-53 at Newport, Rhode Island, in October, 1916. The United States were tending more and more to come into the war on the side of Britain, and apparently the move was to show them that the German U-Boats could cross the Atlantic with ease, but the effect of her visit on American opinion and the stopping and destruction of a few ships off the American coast was entirely the opposite to that expected. Even the regular transatlantic services were not greatly altered on her account.

In addition to the effect of ships being commissioned by the Allied navies, the war naturally wrought many other changes among the Atlantic companies. The steamers of the Red Star Line under the American flag were transferred to the British and employed as troopers. The *Lapland* took part in the first movement of Canadian troops and was allowed to keep her own name, but the *Zeeland* was rechristened *Northland* and the *Vaterland* became the *Southland* at the same time, doing particularly useful work in the Dardanelles expedition.

The Germans had obtained such complete control of the Baltic that the steamers of the Russian American Line were in an awkward position. The *Mitau* and *Russia* arrived at Kronstadt and remained there under the shelter of the fortress for the duration of the war, while the *Czar, Czaritza, Kursk* and *Dwinsk* were safely in the Atlantic, and, joined in 1915 by the new *Czaritza,* they maintained a service of some sort between New York and Archangel, not greatly in demand for passengers except those who had most pressing reasons for traveling, but of infinite use to Russia in the supply of ammunition.

When the Revolution came in 1917, the nationalization of all shipping caused the company, which, it must be remembered, was still Danish in capital, to abandon its New York-Archangel service, the *Czar, Czaritza* and *Dwinsk* being transferred to British registry under the shipping controller. The *Czar* and *Czaritza* were first managed by Ellerman's Wilson Line, but later all foreign vessels were handed over to the Cunard Line for management, the *Dwinsk* being a war casualty in the summer of 1918.

The big ships of the *Minne* type of the Atlantic Transport Line made such ideal transports that the company was soon deprived of their services, and the regular London service was broken up, although the company was in a position to draw assistance from the other units of the International Mercantile Marine. The *Minnewaska* was left to it for a time and was reinforced by the *Manchuria* and *Mongolia,* which the International Mercantile Marine had purchased from the Pacific Mail Company when it was driven out of the transpacific by the high costs, while in addition the Red Star *Samland* and the Leyland *Lancastrian* and *Philadelphian* took sailings from Tilbury.

In April, 1915, much to the surprise of everybody who had been too busily watching the world situation to pay sufficient attention to the internal affairs of the United States, the International Mercantile Marine was thrown into the hands of a receiver and was generally regarded as being bankrupt. Its outstanding capitalization at that time amounted to $171,824,000 whose market value on the first of April was $29,460,217, the $10 common stock being quoted at $1 and the debenture bonds standing at one third of their nominal value. Interest on these debenture bonds had defaulted in the earliest days of the war.

Happily for the company and the shareholders, a man of very unusual ability was appointed receiver, Mr. P. A. S. Franklin, and it was very largely due to him that the company was able to overcome its difficulties. Even his ability, however, might not have availed had it not been for the backing that he received from Mr. Frederick W. Scott, a Virginian banker, who had faith in the company and in the certainty that shipping would revive with the wartime demand. He was willing to back his judgment by buying heavily and he finally secured the coöperation of a number of important New York business men who banded themselves into a committee for the protection of the preferred stockholders.

Within a year the situation was entirely changed. The market value of the capital was $165,482,400 thirteen months after the receiver had been appointed, and after necessary readjustments of stock, the company was forging ahead steadily and, thanks to Mr. Franklin's positive genius in handling difficult situations, making the very best of its opportunities.

Even among the British companies plenty of business was done, as much as their depleted fleets could cope with, and a number of amalgamations and alliances took place. For the first few years after the Canadian Pacific entered the Atlantic service in 1903 there was very keen competition between them and the old-established Allan Line, and both companies built some very fine ships to get ahead of the other. Latterly it was decided that there was no purpose in this wasteful competition and accordingly the two firms came to an amicable working agreement and gradually grew more and more close together. In the summer of 1915, it was announced that the Canadian Pacific had taken over the old Glasgow company and all its interests and ships. The complete combination made for greater economy in working and the benefit of this was felt at once, although at that time the company was not getting very much benefit from the combined fleet of thirty-nine ships of roughly four hundred thousand tons, most of them being on Government service.

In the following year, when the greater part of its tonnage was being employed by the Admiralty, the Cunard looked ahead and made two important purchases. One was the business and fleet of the Canadian Northern Railways' Royal Line which ran between Avonmouth and Canada. The *Royal Edward* had been sunk, but the *Royal George,* built 1907, of 11,146 tons, the *Campania* of 9,291 tons, which had been built as the *British Empire* in 1902, the *Uranium,* the British Indian ex-*Ovoca* of 1891, 5,189 tons, and two smaller cargo ships were included in the purchase. The *Campania* was renamed *Flavia* and was sunk by a mine, while the *Uranium* was torpedoed as the *Feltria.* The *Royal George* was not renamed as she was still on Government service and as it was already more than doubtful whether the Cunard Line would find any use for her in post-war days. It was the service that they wanted to complete their growing Canadian connection.

The other was the Commonwealth and Dominion Line, owning twenty-four fine cargo ships running from Great Britain and the United States to Australia and New Zealand, the two acquisitions causing the Cunard Line to increase its capital by two million pounds.

Building was difficult, but the Canadian Pacific got on with their new construction whenever opportunity occurred. Having satisfied themselves that the cabin ships of the *Missanabie* type were a class that would fulfill the demands of the Atlantic trade, the Canadian Pacific immediately set about improving them, in spite of the difficulty of getting new tonnage built in war time. In 1918 the *Melita* and *Minnedosa* came out, ships of 15,800 tons with a speed of 16 knots. They only carried about the same number of passengers as the earlier cabin ships in spite of the fact that they were so much bigger, the company believing that their future lay with the cabin class. Naturally enough, the advantages they thus offered to the cabin passengers had to be copied, to a degree at least, by the companies whose interests were not identical with those of the Canadian Pacific, with its railway line to keep busy and its land to sell.

Few other companies were as lucky as the Canadian Pacific in getting any ships completed at all, or if they did it was for the benefit of the Flag and in a shape that was quite useless for their commercial purposes.

For instance, the big ship which was being built for the Red Star Line at Belfast when war broke out, and which was to have been called *Belgenland* under the Belgian flag, was held up in company with most other ships of her type, but in 1917 the company had orders to complete her hurriedly as a troopship and she was commissioned in June of that year as the White Star Liner *Belgic*. After the War she became familiar, with her three funnels and two masts, but when she was first completed she was not given her upper promenade deck and had two funnels and three masts after the fashion of the 1899 *Oceanic*. She certainly proved exceedingly useful as a trooper, capable of carrying three complete battalions, but in the summer of 1917 she had a very narrow escape from a submarine off the southwest coast of Ireland, the torpedo not being detected until it was shaving past her.

The Norwegian American Line, whose ships as neutrals were always packed to capacity, both with passengers and cargo, had the bad luck in 1917 to lose one of their two passenger ships, the *Kristianafjord,* by marine risk. The company had been such a good friend to the British and American governments that in its special case it was decided to relax the regulations concerning the construction of merchant ships and the *Stavangerfjord* was turned out for it in 1918.

She was an adaptation of a design of the first two ships, but was an appreciable improvement. Her speed was 15 knots and her gross tonnage was increased to 13,156 and her passenger accommodation was considerably changed on account of the experience that had been gained on the service. The Norwegian transatlantic run is not quite comparable with many of the others from Europe and she demanded more second-class and fewer first-class passengers.

The effect of German submarine warfare on Atlantic history is a subject that has to be touched upon, but it is perhaps best to touch upon it very lightly. It was one of the most ghastly chapters in the history of the sea, but beyond necessary replacements it had very little influence on the actual story of Atlantic travel. While avoiding the unnecessary opening of old wounds, it is only right that due tribute should be paid to the way the seamen carried on in spite of the terrorization, and to mention how the passengers, considering all things, remained remarkably calm. The North Atlantic lost material, in common with all other routes, and there are some instances which must be touched upon.

Principal among these is the sinking of the *Lusitania,* which had for long been the special aim of German submarine commanders. Before her last voyage a warning was specially issued against Atlantic travel in Allied ships — not particularly against traveling in the *Lusitania* as is so often stated — but this warning was disregarded by a large number of people who had their business to attend to.

So it happened that on March 7, 1915, the German submarine U-20, under Kapitan-Leutnant Schwieger, was lying in wait for commerce off the Old Head of Kinsale and the *Lusitania* dropped right into her lap. Two torpedoes got home with terrible effect and the big ship sank in only 20 minutes with the loss of 1,198 lives. It was, of course, a scandal that such a valuable ship, with so many lives on board, should approach the danger area without any escort waiting for her, but at that time the British Navy was deplorably short of escorting craft.

There is no doubt that the sinking of the *Lusitania* was one of the biggest blunders that Germany made in the whole course of the war, and the open jubilation at the slaughter aroused very strong feeling in the United States. Their excuse, first that she was a troopship and secondly that she was carrying munitions, was proved false by an impartial American court, and that the German authorities had no regrets over the matter is shown by the fact that the first cruiser submarine which received a name as well as a number was christened after Schwieger.

The loss of the *Lusitania* stands out above all the others on account of the appalling death roll, but there were many others in which the casualties were quite heavy enough. The White Star *Arabic,* torpedoed on August 19, 1915, by the submarine U-24 not far from where the *Lusitania* went down, cost forty-four lives; the Allan *Hesperian,* outward bound from Liverpool to the Saint Lawrence, brought a casualty list of thirty-two when she foundered in spite of the gallant attempt of Captain W. S. Main to make

Queenstown. In October, 1916, the Cunard *Alaunia* was mined near the Royal Sovereign Lightship with the loss of two lives, but luckily she had just landed her passengers at Falmouth.

The raider *Moewe* captured the Canadian Pacific *Mount Temple* after killing two of her people by gunfire. She had no passengers on board at the time and her crew were taken prisoners to Germany. The Anchor *California* was torpedoed without warning off the Fastnet, thirteen passengers and thirty-two of the crew being drowned, while the Cunard *Laconia* was torpedoed at night in the same neighborhood and American citizens were included in the twelve lives lost, an incident which had a good deal to do with the United States coming into the war.

The Canadian Pacific — former Allan — *Carthaginian* was mined off Innistrahul, but luckily there were no lives lost, although the Anchor Donaldson *Athenia*, torpedoed in the same district, lost fifteen. The Anchor *Tuscania* was also torpedoed off the north coast of Ireland when carrying troops, forty-four being lost. The same waters saw the end of the Cunard *Aurania*, torpedoed without warning, seven men being killed in the engine room by the explosion and two drowned. Attempts were made to tow her in but she broke adrift and became a total wreck near Tobermory, some fifty miles from where she was struck. Her consort, the *Ausonia*, trooping, was sunk off the Fastnet with forty-four lives, two boats which got away with twenty-six people in them never being seen again.

Other losses included the Atlantic transport *Minnehaha*, torpedoed off the Fastnet with forty-three lives and the *Mesaba* with twenty casualties, near the Tuskar. The Canadian Pacific *Pomeranian* was torpedoed off Portland Bill and only one of her crew of fifty-six was saved, while the *Missanabie*, off Daunts Rock, owed most of the loss of forty-five lives to the fact that a sudden lurch of the sinking ship dislodged one of her heavy funnels, which crashed into one of the loaded boats alongside. The Cunard *Carpathia* was torpedoed immediately after leaving her convoy, three torpedoes hitting her and killing five men in the stokeholds, but when the *Flavia* on the Montreal service was sunk, there were happily no casualties.

Several other ships were sunk while on actual war service, but that was a very different matter. Principal among these was the Canadian Pacific *Calgarian,* which had done excellent work in the Tenth Cruiser Squadron of which her sister the *Alsatian* was flagship, and the White Star *Laurentic,* sunk off the north coast of Ireland with a colossal sum in gold on board.

There are one or two other war casualties and attacks which call for special attention. Of all the ships that were legally sunk by the Germans in warlike operations, perhaps the hardest case was the *Justicia,* which was managed as a troopship by the White Star Line on behalf of the British Government. She was the vessel that was launched in 1914 as the *Statendam* for the Holland American Line and then laid aside in favor of war work. She was completed, after a fashion, to assist the movement of American troops across the Atlantic, but in July, 1918, was cornered by several German submarines off the north coast of Ireland. Her engineers put up a particularly gallant fight to save the ship, but repeated torpedoes finished her, although one of the attacking submarines was sunk.

On service as the United States transport *Mount Vernon,* the famous *Kronprinzessin Cecilie* of the North German Lloyd had a very narrow escape on September 5, 1918, and the fact that she escaped at all was a fine tribute to her German builders. With her former consort, the *Agamemnon,* she was one of a large sixteen-knot convoy escorted by six American destroyers and was two hundred and fifty miles from Brest when the look-out man sighted a submarine's periscope and its wake. The ship was immediately swung, but she had scarcely time to move when the torpedo was fired and hit her directly on the bulkhead between the third and fourth boiler rooms, the worst possible position. Thirty-six men were killed by the explosion, as it unfortunately happened that the watch was being relieved and both watches were in the boiler room at the same time. She was fully armed and fire was immediately opened with every available gun, while depth charges were dropped over the assumed position of the enemy, so that she could not come up to take a second shot. Had she done so, the ship could not possibly have survived, but as it was the steam pipes from the forward boilers were uninjured and although the pressure dropped to one hundred and five pounds and the speed to 6 knots, every available man who could be usefully employed, soldiers as well as sailors, started stoking and passing, with the result that she contrived to work up to fifteen knots.

But she was gradually taking a list up to ten degrees and the sea was rising, so that it was a very anxious time before she finally made Brest in safety. Her handling was a particularly good piece of work and reflected the very greatest credit in the discipline that prevailed. Captain Douglas Dismukes, United States Navy, received the Distinguished Service Medal for the way it was done.

Ever since the sinking of the *Lusitania,* the biggest liners had been the special mark of the German submarine commanders, particularly those which were rushing American troops across the Atlantic as fast as they could. Naturally enough, it was the particular business of the Allies to defend them, British and American warships collaborating in this work. The *Olympic* was eastward bound on May 12, 1918, escorted by American destroyers, when she was sighted by the German submarine U-103. It was soon after the voluntary system of submarine service had been abolished on account of the lack of applicants and replaced by drafting from the depots, which accounts for the fact that her tubes were not ready for service.

Her captain brought her within comfortable firing range of the *Olympic* without his presence being suspected, found that the after tubes were not ready, and dipped to run alongside her until they were. When next he came to the surface to take a sight through his periscope he was being sucked bodily towards the ship, which, in changing course, hit him hard and then opened up every compartment with her wing propeller.

Obviously sinking, the U-103 came to the surface and fired off Very pistols to attract attention. By some strange chance which was certainly not intentional, the arrangement of shots was the American recognition signal for the night, so that each of the escorting American destroyers thought that it was her consort signaling, wondered why she was doing it, and passed on. Finally it was made clear what was really happening, and almost the whole crew were taken off before the submarine finally sank.

Then came the Armistice and as one of its terms the surrender of the German Mercantile Marine was insisted upon as a reparation for the Allied merchantmen that had been sunk by submarines against the laws of war. Whether it was or was not a sound move economically need not be discussed here. There were certain exceptions made; the United States had no desire to take a share in the general plunder and were content with the ships which they had seized in 1917, including the *Leviathan,* while Italy took the ships which had fallen into her hands when she entered the war, and the ships formerly under the Austrian flag but belonging to the territory which had become Italian, including the fleet of the Unione Austriaca which became the Cosulich Line.

Perhaps the saddest incident in the surrender of the German fleet was the case of the famous Hamburg American record breaker *Victoria Louise,* ex-*Deutschland,* which had been used throughout the war as a receiving ship at Hamburg. The Reparations Committee examined her and found her in such a sad condition that they decided that it was not worth their while to demand her surrender. It was suggested that she should be presented to Belgium but it was then pointed out that the gift would scarcely be friendly and she was finally left in the hands of her owners. At that time they were glad to have anything that would float and hurriedly converted her into a third-class ship, removing two of her four funnels and making her grotesquely ugly in comparison with her former beautiful appearance. Renamed *Hansa,* she was recommissioned in 1922 for two years' further service, was then laid up and scrapped in 1925.

Naturally enough, all the companies were eager to build up their fleets again, but it was not easy. For one thing, shipbuilding costs were terribly high; for another, practically every available slip was occupied by a cargo ship or man-of-war. The International Mercantile Marine group was very wary over its replacement policy, not having the least intention of ordering ships which could not pay at the shipbuilding prices that were then ruling. The *Regina* had been under construction for the Dominion Line during the war and had been hurriedly completed as a trooper, not at all in a manner that suited her for passenger carrying. After the Armistice, however, she was completed satisfactorily and put on the Liverpool-Boston service, her gross tonnage of 16,500 and her combination triple and turbine engines giving her a speed of 15 knots made her quite a useful intermediate ship and after a little experience with her the company decided that hers was a design that, occasionally with slight adaptations, would prove very useful on more than one service. Accordingly the *Pittsburgh* was built on very similar lines for the American Line service, but both ships were moved from service to service continually, and finished up as the *Westernland* and *Pennland* on the Leyland-Red Star service.

The Atlantic Transport Line had been particularly heavily hit, losing its whole fleet of the *Minne* type and several of its smaller ships as well. It had, however, one ship under construction, the *Minnekahda* of seventeen thousand tons, which was originally intended to be a development of the previous ships but which was completed by government order as a very different vessel. It had also purchased the Pacific Mail liners *Manchuria* and *Mongolia*, which were originally laid down for it, and Hill's big *Minnetonka* from the transpacific service, so that it was able to carry on some sort of a service while its new plans were maturing. By special permission of the British Government, however, the *Minnekahda* was transferred to the American flag in 1920, although the law against this was still enforced.

It was nearly as difficult to get one's own ships back from government service as it was to get new ones built, for they were distributed all over the Seven Seas and all wanted a lot of attention at the hands of the overworked shipyards before they were fit for commercial service again. And then, of course, it was not the most useful ships that were ready first. One of the first ships that the Cunard Line got back from the Government was the *Royal George*, which was paid off from transport duty in March, 1919. They were then so short of tonnage that she was useful for a time and was put on the Liverpool and Southampton services, but she did not fit in and the company did not trouble to give her a traditional Cunard name. At the first opportunity she was converted into a floating emigrant depot at Cherbourg, where she was stripped of every movable fitting by her guests, although they knew perfectly well that they would have to drop most of their loot overboard before they encountered the New York customs officers. She was then laid up at Falmouth and was finally towed across to the old German naval dockyard at Wilhelmshaven and broken up.

The year 1919 was, in fact, a year of utter confusion that may almost be disregarded from the historical point of view. Services were maintained after a fashion, as best as they might be, a large part of the available tonnage was used far more for the repatriation of American and Canadian troops than for ordinary traffic, and such little progress as could be made was entirely in preparation for 1920.

## Chapter X: The Post-War Decade

THE last decade of the century under review began with the most extraordinary conditions. Europe was racked and ruined by the War; the United States were enjoying an unparalleled boom. Migration had been held up for many years and there was a big and steadily increasing waiting list to cross the Atlantic, while the policy of the United States authorities towards European migrants was still uncertain. The probable tendency of the Atlantic passenger trade was a subject of infinite discussion, but the general opinion was that the luxury liner was dead, for some years at least, and that the ship of more moderate size and speed, able to quote a more moderate price, was the ship of the future. Germany had disappeared as a factor; the United States had risen. The passenger ships of most of the Allied nations had been subjected to very hard war service and all required a lot of attention before they could be described as really fit for reëntering the passenger business.

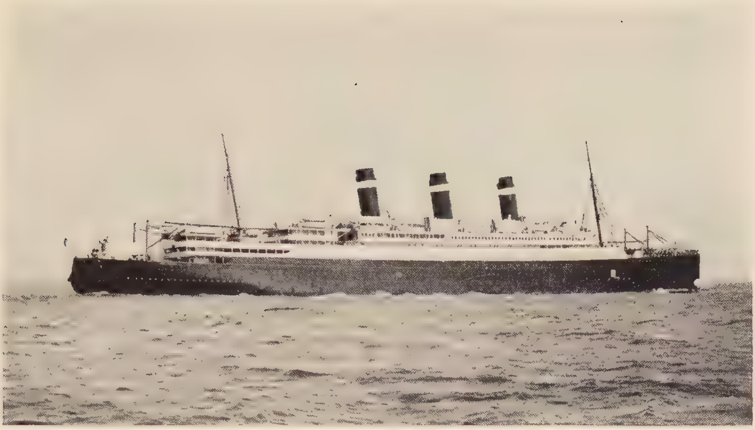
In this general confusion it is only natural that some of the services were maintained by very makeshift and sometimes unsuitable tonnage. The shipyards were all working to capacity, replacing the victims of the German submarine blockade, and to get a new ship built was a difficult task. Many ships were chartered on to the North Atlantic from the less congested trades, and the price that had to be paid was a heavy one. The Cunard Line, for instance, whose specially designed ships had been of such service to the Government, could only maintain its mail service by chartering ships, but was lucky in getting some very useful ones from the Pacific Steam Navigation Company. They were designed for the long-distance service to South America, it is true, and their speed was not up to the Atlantic standard, but they were fine ships with excellent passenger accommodation and they answered their purpose well.

The advantages of the International Mercantile Marine combination were shown by the way the ships could be, and were, passed from one section to the other, according to requirements. These changes altered almost weekly and it is impossible to describe them, but it may be mentioned that the Liverpool-New York service of the White Star Line included the Dominion steamer *Irishman* and on the cargo side a number of steamers chartered from the United States Shipping Board. The *Regina* was running on the Philadelphia service, while the Atlantic Transport Line's London run was reinforced by cargo tonnage from the White Star Line and the United States Shipping Board. The Red Star Line from Antwerp, which was kept very busy with the reconstruction of Belgium, included many chartered ships, while alongside the *Cretic* on the service from Genoa to New York ran the *Rimouski,* designed for a very different run.

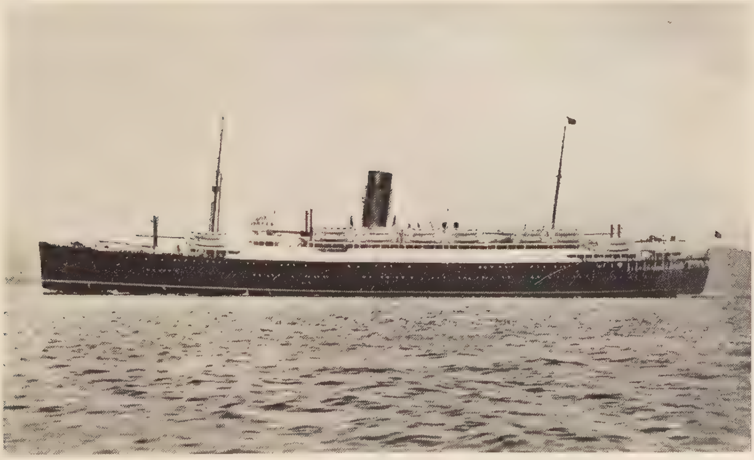
The first thing to be done by the British companies, at least, was to acquire new tonnage, even though shipbuilding prices were at their peak and entailed huge capital costs. A certain amount of relief was obtained by hiring surrendered German ships from the Shipping Controller, but not all of these were suitable for the work; some were still in poor condition and the system of management was not sufficiently definite for the tastes of most shipping men who had to look ahead.

The Cunard Line had its plans well ahead before the end of the War, so was able to make good progress through the confusion year of 1919. The first ship of its replacement program came out in 1920 as the *Tyrrhenia,* already mentioned, a ship which was very much more an Anchor Liner than a Cunard and which is conspicuous in being the only ship in the Cunard fleet which has a cruiser stern instead of the usual counter. She was a ship of 16,243 tons, with a speed of 17 knots with double-reduction geared turbines and good cargo stowage and passenger accommodation. She was something of a misfit in their fleet, although a very successful ship, and suffered under a disadvantage in her name, which many people found difficult both to pronounce and understand. At the first opportunity therefore she was renamed *Lancastria,* particularly appropriate for the Cunard Line with its Mersey traditions, but one from which she was originally debarred under the Merchant Shipping Act because another vessel had taken it first.

At the same time the directors were well under way with a very



The Red Star Liner *Belgenland,* the Biggest Ship on the New York-Antwerp Run, During the War the White Star Troopship *Belgic*



*Lancastria,* Post-War Medium-Sized Ship, the Only Cunarder Built with a Cruiser Stern

The Cunard *Andania*, Designed for the London-Montreal Service

The Lloyd Sabaudo Steamer *Conte Rosso* Which Aimed to Attract the American Tourist to "Italy First" large program of two classes, one for the New York and Boston services and the other for the Canadian. They were ships without any frills on them, just good, steady, dividend earners, and they were built under the impression that the day of the luxury liner was past and that the public would want something of reasonable size and speed that would take them across the Atlantic at the most reasonable possible fare. It was a very easy mistake to make at the time, for it had every justification in common sense, but unfortunately the post-war public, with far less money, was more inclined to spend than ever, with the result that, fine ships as they were, the New York fleet was somewhat handicapped by comparison with more showy rivals and also suffered from the unreasonable prejudice against single funnels.

This big progam could not be carried out in a short time with all the shipyards so busy, so that it was spread over the years from 1920 to 1925. This gave opportunities for various minor alterations to be worked into the designs so that there were few absolutely precise duplicates. There were, however, two broad classes which may reasonably be regarded as sisters.

The big class consisted of the *Scythia, Samaria, Laconia, Franconia and Carinthia,* ships of roughly twenty thousand tons with a speed of seventeen knots, dead-weight capacity of twelve thousand tons, and big passenger accommodation in all three classes. This accommodation varied considerably with the different ships, some being interchangeable, and was later altered still further by the introduction of the third tourist. Their machinery was double-reduction turbines at twelve thousand five hundred indicated horse power, supplied by oil-burning boilers.

The Canadian ships, all of whose names began with the letter "A," were in appearance reduced editions of the twenty thousand-ton class and in this, although pleasing to the seaman's discerning eye, they suffered somewhat in comparison with the memory of the handsome two-funneled ships which maintained the service before the war. *Ansonia, Antonia, Andania, Alaunia, Ascania and Aurania* were of roughly 14,000 tons with double-reduction geared turbines, giving them a speed of 15½ knots and a deadweight capacity of 10,300. They were designed to carry cabin and third-class passengers only, about five hundred of the former and over one thousand of the latter, and for reasonably priced cabin ships they were excellent. It was soon found that they were more than sufficient to maintain the service between London and Canada, and many of them found very useful employment on the United States services from time to time.

Unfortunately the company was not so lucky in its other post-war ship, the *Albania* of 1920, but that was no fault of theirs or hers. As she was originally designed for the Canadian service she would have fitted in with their other ships excellently, but while she was on the stocks her design was the plaything of every government official. Ideas followed one another in rapid succession, and when the war ended she was politely handed back to Cunards for them to do the best they might with her. They had her completed as near to their practice as they could, but she was a misfit and spent a lot of her time laid up before she was sold to the Italians.

In addition to the new ships, the existing vessels which had been on government service had to be reconditioned as soon as the yards could cope with them, and opportunity was taken to bring them up to date in every particular. The *Aquitania,* which had done such splendid work as a transport and hospital ship, was one of the first to be so treated and during reconditioning it was decided to convert her to oil fuel. At peak prices the whole of the work cost four hundred thousand pounds and this conversion of the boilers amounted to a sizeable sum in the total, but it was very well worth while.

For one thing the British shipowners had innumerable coal difficulties in sight, difficulties which culminated in the coal strike of 1921, which caused any number to convert their tonnage to liquid fuel. Oil fuel, by avoiding the necessity of cleaning out the boilers, permits a greater average speed on a voyage, it is more compact and therefore increases the carrying capacity of the ship; it is cleaner, and it is so easily taken into the bunkers that not only is a large sum saved on labor but ships can be turned round at their terminal ports much more quickly, and with such high overhead charges as rule to-day that is a very big consideration. The stokehold crew is also greatly reduced, in the case of the *Aquitania* from three hundred and fifty to less than fifty; and the modern oil-fuel fireman is a much more ambitious and better type than the old "black squad" and is far more in keeping with a modern liner.

Against these advantages is the fact that the whole system of burning oil under boilers is extremely wasteful from an engineering point of view; far less efficient than exploding it in a cylinder, while oil is much dearer than coal and its price is much more liable to fluctuation.

In order to pay for this new construction, the company decided to issue one million pounds' worth of new shares, bringing the total capital up to £7,000,020. At the same time they issued four million pounds' worth of seven per cent. debentures which were eagerly snapped up by the market.

Allied to the Cunard Line the Anchor Company also went in for a big building program that was a great advance on anything that they had owned before the war. The *Cameronia,* the first of the type, which was delivered in 1920, when the company only had one ship left for its Atlantic service, had been ordered well ahead to be built when opportunity offered. Her tonnage was 16,365, geared turbines gave her a speed of 16½ knots, while she had comfortable passenger accommodation and a dead-weight capacity of 10,000.

She had a single tall funnel with a characteristic cap between two masts, straight stem and cruiser stern, and with slight alterations both design and appearance was followed in the *Tuscania* of 1922 and *California* of 1923. Two other ships were included in the program but by the time the *California* came out, it was obvious that the shipping industry was in for a very bad spell and their construction was held up.

The White Star Line was not willing to pay the enormous prices that the shipbuilders were demanding at that time and went in for a more cautious policy. Which of the two was right in the very difficult circumstances ruling it is hard to say. To begin with, the White Star, which, it must be remembered, had the resources of the other International Mercantile Marine companies to draw upon, bought the North German Lloyd *Berlin* from the Shipping Controller to whom she had been surrendered. She, it will be remembered, laid the Tory Island mine field which sank the *Audacious.* The White Star Company renamed her *Arabic* in memory of the ship which had been sunk by a submarine, and although she was taken over in

1920 it was not until the autumn of next year that she was ready for service again and was put on the run between the Mediterranean and New York.

They went so far as to lay down at Belfast a forty thousand-ton ship which was to be named *Homeric,* but it was soon decided to cancel the order and they bought surrendered German liners instead. The Canadian Pacific did likewise, the *Kaiserin Auguste Victoria* becoming *Empress of Scotland.*

Most of the other British companies were, perforce, content to wait until shipbuilding prices had come down to a reasonable level or until the shipyards could attend to their orders.

So the greatest interest of the year really rested with the Continental firms and routes, particularly with the Germans, who had been stripped of practically every ship by the victorious Allies. They had two great problems before them, first to regain a position of some sort in the services and second to rebuild the fleet of which they had been despoiled.

The first was the concern of the companies themselves; in the second it was absolutely necessary to solicit aid. Hard pressed as they were by the Treaty of Versailles, the German authorities were far too well aware of the enormous importance to the Fatherland of the North American trade to refuse help to the shipping companies in restoring their fleets. First of all, the plan was that the State should help financially with the replacing of ninety per cent. of the tonnage that each company had lost, but the rapid depreciation of the mark prevented that and something like one third was the amount eventually handled. Of this, with minor differences according to the circumstances of each case, the Government was willing to provide eighty per cent. of the cost if the company provided twenty per cent. The companies were permitted to use ten per cent. of the money supplied by the Government for the purchase of tonnage abroad, either new or second-hand.

Considering what their losses had been, this help was not extravagant, and it must be admitted that a wonderful tribute to the courage of the German shipping men and the soundness of their industry is contained in the way the big lines built up their fleets.

As regards reconstructing their services, it was at first necessary to seek coöperation outside the country, and as the United States as a whole had more enthusiasm than knowledge on shipping subjects, and infinite capital at their disposal, it was only natural that alliances should be formed between the German companies which could provide the knowledge and the Americans who could provide the ships. On this principle the North German Lloyd allied itself to the United States Mail Line, while the Hamburg American entered into an arrangement with Harriman's United American Line.

As is only natural when an industry booms as shipping boomed during the War and immediately post-War, a number of companies sprang up both in Britain and the United States — in all the other maritime countries too for that matter — which were scarcely a desirable element in the market. Of these companies, one of the worst was the United States Mail Line which was supposed to be capitalized at one million dollars, although one hundred twenty thousand dollars appears to be all the actual cash that it possessed.

Yet the United States Shipping Board entrusted it with eleven big vessels and it began in fine style by inaugurating a service between London and New York with the smaller type of *State* liner which had been built as United States transports. The *Panhandle State* inaugurated the service in September, 1920, calling at Queenstown and Boulogne, and she was joined by the *Old North State, Centennial State* and *Blue Hen State.*

But the directors had much larger ideas than the one service and the arrangement with the Lloyd was a comprehensive one. The United States Mail Company agreed to put all the ships that it could obtain from the United States Shipping Board into service as soon as they possibly could and to maintain regular passenger and freight services between New York, Boston, Baltimore and Bremen, and New York and Danzig, with an intermediate call in the Channel whenever it could be arranged. The Lloyd was to be the sole general agent for the company in Central Europe, the Americans reserving to themselves the right to employ their own agents in other countries — France, Belgium, Italy, Spain and England. The docks, quays and other facilities of the Lloyd Line at Bremen and Bremerhaven were to be at the disposal of the American steamers under the same conditions as the Lloyd's own, while the United States Mail Company had the right to keep their whole organization entirely American.

But the North German Lloyd had the right to place its own or chartered tonnage on to the service as the opportunity arose, provided it did not exceed the two hundred thousand tons which the American concern possessed. With regard to other ports in the United States, or other countries of the world, the Germans had an absolutely free hand and they set about reëstablishing their non-Atlantic services in conjunction with British and Japanese concerns.

All the services provided for in the agreement did not come into existence, but the service between New York and Bremen, by way of Queenstown, Cherbourg and Southampton, was started with the *George Washington, President Grant, Mount Vernon* (ex-*Kronprinzessin Cecilie*) and *Agamemnon* (ex-*Kaiser Wilhelm II*), *America* was also allotted but never ran on the service.

Then the bubble burst and the United States Lines came into being to operate the United States Shipping Board steamers, while the United States Mail Line was faced by claims for over $8,000,000 from the Board, $1,655,000 from sundry creditors, and a considerable sum for prepaid passages. There was not the least chance of these being paid; it had received a subsidy of $117,477 during its brief career and that had gone, in addition to all the receipts of a boom period. There never had been any proper working capital.

The arrangement had undoubtedly been a convenient one for the North German Lloyd and saved them at a very critical stage of their career when the biggest ship left to them was the 725-ton *Gruss Gott*. Their aim was to reëstablish themselves as quickly as possible, so the first replacement ships to be built were the small ones of which they had at least a reasonable hope of prompt delivery. It would have suited them better had the United States Mail lasted longer, but as it was, the purpose was served, additional ships were beginning to come in, and they were not anxious to make a similar arrangement with anybody else. Herr Philip Heineken, who had come to the front during the War and had made the reconstruction plans as managing director, became president of the company in the spring of 1921 and although he fully realized the magnitude of the task before him he was satisfied with the progress.

The Hamburg American Line got a very much sounder concern for their alliance, the United American Lines. The American Ship and Commerce Corporation had been founded by Mr. W. A. Harriman, the son of the railway king, and the Kerr Steamship interests in the United States. They formed the United American Lines as a subsidiary to take up a twenty-year agreement with the Hamburg American Company, to maintain the Atlantic service on a fifty-fifty basis very much on the lines of the North German Lloyd agreement with the United States Mail. The Kerr interests considered that the country was sacrificing too much for Germany and broke away, but the Harriman interests hung on and the service started with their putting on to the run the *Cleveland* (ex-*German*), and *Mount Clay*. The Hapag for its part provided the old *Hansa,* the famous *Deutschland* of 1900 rebuilt as an emigrant ship, and the main purpose of the line was concerned with the third class. Although it began in a small way only, it was sufficient to restore the Hamburg American flag to the Western Ocean, which is what its directors most desired.

In the meantime there was a lot of diplomatic bother about two Hapag liners which the Allies very much wanted to obtain as part of the spoils of war. The *Johann Heinrich Burchard* and *William Oswald* were ceded to the Royal Holland Lloyd during the war as compensation for tonnage which had been sunk by German submarines while carrying a safe conduct, and the victorious Allies strongly objected to the transfer, maintaining that it was illegal. All sorts of arguments were brought forward by both parties, but while they were going on the ships were put on to the South American service in 1920. They ran, with the Allies still clamoring for their surrender, for two years, and then the difficulty was solved by their being sold to the United American Line with the strong backing of the United States Government, to become the *Reliance* and *Resolute* and to make themselves very popular carriers on the Hamburg-New York route.

The tonnage available for the Harriman-Hapag combination was not nearly sufficient for the possibilities of the Hamburg trade, and nearly all the companies which had any tonnage to spare started services to the Elbe to get what they could of it. It began with the Cunard *Saxonia* being put on the run for passengers and cargo, but nearly all the other British companies followed suit, and even the Compagnie Générale Transatlantique spared a few ships for it.

The German trading community was glad enough of these facilities when they had no ships themselves, but when their own situation was improved they soon froze out the foreign competition.

Among the other Continental companies activity was checked by high cost but a good deal was going on. The Compagnie Générale Transatlantique had suffered heavily during the war, although of course nothing compared with some of the companies, and had chartered certain surrendered German liners from the French Government to whom they had been allotted. Most of these were on the West Indian or minor services but the North German Lloyd *Scharnhorst* was put on to the New York run as *La Bourdounais*.

Italy was having a good deal of internal trouble which hampered the activities of her shipowners, but they showed the greatest enterprise in surmounting their difficulties. The Navigazione Generale Italiana was quickly off the mark in increasing its fleet, although its original purpose was to take advantage of the tremendous flow of emigration that was expected to follow the war. The *Colombo* had been launched during the war, a seventeen-knot ship of twelve thousand tons which was greatly in advance of anything the company had previously owned. But she did not satisfy them at all and they followed her in 1920 with the *Giulio Cesare* of 21,657 tons, with a speed of 19½ knots with geared turbines. She was the first Italian ship to have a gross tonnage of over 20,000 but she was soon surpassed by the *Duilio* of 1923, a ship of 24,281 tons with a more moderate speed of 18½ knots. After that the company paused for a little and its next ship was not launched until 1926.

The rival, Lloyd Sabaudo, had no intention of being left behind, although its aim was more to secure the favor of American holidaymakers and to persuade them to visit Italy before France. The management had conceived the idea in 1914, but it was more than ever necessary now that they had made up their minds concerning the probable trend of American immigration. When the idea was first thought of, the company commissioned Beardmores on the Clyde to build the *Conte Rosso,* but like all foreign orders her construction was held up during the War and in 1917 she was launched as His Majesty's aircraft carrier *Argus*. It was no use trying to convert her back into a passenger ship so that a new *Conte Rosso* was laid down and launched early in 1921, a ship of 18,017 tons, with geared turbines giving her a trial speed of 20½ knots, having quite a reasonable cargo capacity in addition to accommodation for 208 first-class, 268 second-class, and 1,880 third-class passengers. She was a very great advance on the previous ships of the company, the biggest of which was only 7,800 tons.

She was followed by a sister, the *Conte Verde,* from the same yard, in 1923.

The Swedish American Line, which had been carrying on with totally inadequate tonnage, purchased the old Allan liner *Virginian* from the Canadian Pacific, a ship that was well remembered as a pioneer turbine liner. They renamed her *Drottningholm* and after she had coped with the first post-war rush, they took out the early Parsons turbines, which naturally had the troubles of the pioneer, and replaced them by De Laval single-geared turbines, at the same time converting her boilers to oil fuel and greatly improving the passenger accommodation. In her new engines she burned nine hundred sixty tons of oil per voyage against twenty-four hundred tons of coal, while the speed was increased from about fifteen to sixteen and one-half knots. The Norwegian American Line talked about buying new passenger tonnage but confined themselves to the cargo business instead.

In the Eastern Mediterranean, affairs were also moving. It was anticipated that there would be a big flow of emigration and the Embiricos Company, which controlled the National Steam Navigation Company of Greece and also the Byron Line, prepared to take full advantage of it.

They obtained delivery of the ten thousand-ton seventeen-knot ship *Vasilefs Constantinos,* which had been laid down for them by Cammell, Laird's at Birkenhead shortly before the outbreak of war, and as King Constantine's name was unpopular in Greece at that time, renamed her *Megali Hellas* in 1920. They then started a campaign of buying former German Atlantic liners from the British and getting round regulations by keeping them under the British flag under the ownership of the Byron Steamship Company. The first was the former Hamburg American liner *Cleveland* which had been running for the Americans as the *Mobile.* She was purchased in 1920 and renamed *King Alexander* but was soon transferred at a profit to Harriman's United American Line and reverted to her original name. Then came the North German Lloyd *Bremen* in 1921. Her first name under their ownership was *Constantinople,* then *King Alexander*. After a pause, in which the effect of the Dillingham Immigration Restriction Act was felt, they purchased from the Orient Line's Australian service the steamer *Omar* which was originally the *Konigin Louise* of the North German Lloyd. She was renamed *Edison,* while the former Anchor liner *Columbia* which was bought soon afterwards, was renamed *Moreas*. Owing to the American regulations, these ships were bitterly disappointing in the trade of which so much had been hoped and one by one they went to the scrappers, after earning little or nothing for the company.

Connected with the Eastern Mediterranean trade also, there occurred at the end of 1920 an event which, while it had no great bearing on the serious history of the service, was intensely interesting to those who loved the old ships. The old White Star *Germanic* of 1874 had been sold to the Turks as already described, and while acting as a troopship during the Dardanelles Expedition had been torpedoed by a British submarine but later salvaged. After the Armistice she carried repatriated German troops home from Turkey and in October, 1920, sailed from Constantinople to New York with a full complement of steerage passengers, most of them Christian refugees from the fury of the Turk. They arrived in New York without almost any of the essential papers and documents, and the American authorities were in something of a quandary as to how to deal with them. The law said that they should be expelled, but humanity pointed out the fate that would await them when they got home, and finally they were permitted to land. After that, she made several voyages back and forth across the Atlantic, but she had been allowed to get into a shocking condition and she was really far too old for such work, some of her passages being very long indeed.

The year 1921 saw the companies very much better provided with tonnage, quite sufficient for the reduced traffic that was being offered. The trooping movement being finished, there was more ex-German tonnage available for distribution, and most of it was bought at a low price. The United States was content with the *Leviathan* (ex-*Vaterland*) and other seized ships which were already on its service, and the Cunard and White Star Line decided to buy the other two big ships, the pre-war *Imperator* and the *Bismarck* which was being completed, between them. Each took half shares in each ship, but the *Imperator* was allotted to the Cunard service as the *Berengaria,* while the *Bismarck* became the *Majestic* under the White Star flag.

The White Star Line also purchased the North German Lloyd *Columbus* of 32,500 tons, which had been launched just before the outbreak of war, and renamed her *Homeric* in place of the 40,000-ton ship whose construction had been abandoned. The White Star Line also proceeded with the construction of cabin-class tonnage for the Canadian route.

Canadian cabin ships were also added to the Canadian Pacific Line, improvements on the *Melita* type. *Montcalm, Montclare* and *Montrose,* coming out in 1921 and 1922, were ships of roughly 16,400 tons, with a dead-weight capacity of 8,362 and a speed of 16½ knots. They carried 548 passengers in the cabin class and 1,250 in the third, and at the time they were the last word in the cabin-class construction.

Like the White Star Line, the Holland American Line began their replacement by the cabin ships. The *Edam* type of four ships —*Edam, Leerdam, Maasdam* and *Spaandam*—were very moderate 13-knot ships with a gross tonnage of 8,850, designed primarily as cargo carriers, but having accommodation for 11 first-class and nearly 1,000 emigrants. They were designed to be used on various services beside the direct New York route and they proved exceedingly useful.

Far more important were the *Veendam* and *Volendam* of 1922 and 1923, which had a gross tonnage of 15,450 and a speed of 15 knots with accommodation for nearly 2,000 passengers in addition to a big cargo stowage. In appearance they were very much like the White Star *Doric* type, with two funnels and two masts, straight stem and cruiser stern.

But most important of all was the thirty thousand-ton *Statendam* which the line ordered to replace the ship of the same name which had been laid down by Harland and Wolff before the war, taken over by the British Government, and torpedoed as the *Justicia.* Her loss was a serious blow to the company, which wanted her services badly. As soon as Harland and Wolff could take the contract, in 1921, what was practically a duplicate was laid down. She was the biggest ship that had been laid down for any of the lines since the war, but she was essentially a comfortable rather than a luxury liner. Then came the shipping slump and work proceeded more slowly but in order to provide employment the *Statendam* was launched in September, 1924, and immediately towed round to a safe laying-up berth where she waited in her uncompleted state until the spring of 1927, when the Dutch Government intervened with a loan and she was towed across to Holland to be completed at Wilton's yard at Rotterdam.

When all the other transatlantic lines were thus building economy tonnage, the Compagnie Générale Transatlantique started on luxury ships and set the race going again. To begin with, they could not exactly help themselves, for the *Paris* was already launched and had been awaiting the end of the war for completion, besides which they were very largely in the hands of the French Government on account of the assistance that they received. So the *Paris* was completed for sea in 1921, a magnificent quadruple-screw ship with direct-acting turbines, having a gross tonnage of 34,569 and a speed of 22 knots. She had very large passenger accommodation, particularly for emigrants, and like all the express ships stowed very little cargo. In her design, the four funnels of the *France* had been reduced to three, after the fashion of the big Hamburg American liners.

At the same time they did not neglect their smaller ships and went in for some excellent cabin vessels. The *De La Salle* of 1921 had a gross tonnage of 8,400 and a speed of 14½ knots with triple-expansion engines, but the *De Grasse* of 1924 was a very much finer ship with geared turbines, a gross tonnage of 17,759, and a speed of 16½ knots. These ships proved themselves particularly popular with American tourists, very largely owing to the effective slogan which the company adopted, "You are in France the moment you cross the gangplank."

The Royal Mail Steam Packet Company, the oldest British company on the South American service, took advantage of the shortage of tonnage that was still felt to start a new service to New York, to which they gave the name of the "Comfort Route." The

*Montcalm,* Canadian Pacific Liner Introducing Striking Post-War Improvements in the Cabin Class

The Holland American *Statendam,* Which Replaced the Ship of the Same Name Submarined During the War

The Hamburg American Steamer *New York* Designed for an Economical Reasonable Speed Service in 1926

The *Augustus* of the Navigazione Generale Italiana, the Biggest Motor Liner in the World

*Orduna, Oropesa,* and *Orbita,* fifteen thousand-ton ships belonging to the associated Pacific Steam Navigation Company — the *Orduna* had been chartered to the Cunard Line for the greater part of the war — were taken off the Southern service and started a new one from Hamburg to New York, with calls at Southampton and Cherbourg. Soon afterwards the *Oropesa* was replaced by the *Orca* and they were joined by the *Ohio,* bought from the Shipping Controller after her surrender by the Germans. Although she had not taken a German sailing she had originally been built by the North German Lloyd as the *Munchen* and was intended as an improved *Berlin* for the Mediterranean-New York service.

But the outstanding event of 1921 was the passage of the new United States immigration law which made really effective the regulations that had been framed in 1917. Each country was allotted a quota of three per cent. of its nationals on the 1910 census, the quota year being counted from the beginning of July to the end of of June. Twenty per cent. of such quota was allowed to enter each month, which resulted in a scramble for first place when the quota opened and unbalanced services. Necessary as the law undoubtedly was, it was not well framed and it still left a good deal of trouble for the shipowners that might have been avoided had it been more carefully worded, while the fact that New York was the principal gateway into the United States made the accommodation and staff at Ellis Island, the big immigration depot there, grotesquely inadequate and caused a good deal of hardship to settlers. As an example of what it did for the companies, it may be mentioned that 230,000 fewer passengers traveled westward in the first six months of 1922 than in the similar period of 1921.

The immigration quota was not the only American legislation to worry the shipowners; close on its heels in 1922 came the question of the enforcement of prohibition. There was considerable confusion as to the reading of the law and whether it applied to ships at all. At first it was made to apply to American ships within certain limits, and the matter of foreign tonnage was left for further discussion. Conflicting orders were constantly being made and unmade and for a long time the shipowners did not know where they were. At one time liquor was thrown overboard when the ship entered American territorial limits, and there were instances of free liquor being given to all the steerage passengers in order to avoid the waste. The question of the wine ration that was not only legal but compulsory in certain Latin ships also made a thorny point, and any number of protests and cross protests were made before the exact interpretation of the law was decided upon and ships could keep their stores of liquor under seal while in American waters.

Although the commencement of the inevitable post-war slump saw the Allies with far more tonnage than they wanted, the laws of the various countries prevented the surplus ships being sold back to Germany, who was willing to give big prices for them to reinforce her building efforts. It was not until 1922 that the regulations began to relax, first indirectly and then fully, with the result that the German lines were able to get back a number of the ships which were originally built for their particular requirements.

The North German Lloyd, bereft of its American alliance, was the company which took the greatest advantage of this permission, getting back a number of useful ships. The American *Pocahontas*, originally the *Prinzess Irene* of 1900, became the *Bremen* until the name was wanted for the new record breaker, when she was renamed *Karlsruhe*. *Derfflinger* and *Lutzow* had been the *Huntsgreen* and *Huntsend* under the British flag; they returned to their original names, while no change was necessary with the *Hannover, Seydlitz* and *Yorck*. The *Zeppelin* of 1914 had been running on the Orient Line's Australian service as the *Ormuz* and was renamed *Dresden* when she returned to the Lloyd. These repurchases, it must be understood, were spread over several years.

But of more importance to the company than these repurchases was the fact that they could claim to have the biggest ship of the German Merchant Service, and one of the biggest on the Atlantic, by the fact that with a good deal of difficulty they contrived to save the sister of the *Homeric* (ex-*Columbus*) from surrender to the Allies on a legal point. She was given the name *Columbus* and, by carefully watching the experience of the White Star with the *Homeric*, various amendments and slight improvements were introduced into her design before she was completed in 1922. Her gross tonnage was 32,354 and she had a large passenger capacity with very comfortable quarters in addition to a reasonable amount of cargo. A twin-screw ship with a sea speed of between nineteen and twenty knots, her weak point was undoubtedly the fact that she was fitted with quadruple-expansion engines, but that was afterwards altered and in the meantime she made an excellent figurehead for the Lloyd's service.

With continued alliance to the United American Line the Hamburg American Company was in a better position with regard to tonnage, and this position was still further improved in 1922 when their American allies purchased from the Royal Holland Lloyd the *Brabantic* and *Limburgia,* already mentioned on account of the diplomatic bother over their status, and renamed them *Resolute* and *Reliance.*

These ships were put under the flag of the Republic of Panama in order to save high costs and also to obtain the advantages which foreign ships had in the matter of prohibition, but they were American through and through and made a valuable addition to the international service. Their speed was slow for the Western Ocean, sixteen and one half knots only, but they were nearly twenty thousand tons each and in addition to very comfortable passenger accommodation had fair cargo stowage. They were popular on the Western Ocean and also proved most suitable for yachting cruises, for which duty they were detached season after season.

In the meantime, the Cunard Line was getting ahead steadily with the completion of the new twenty thousand-tonners and the sale of obsolete or unsuitable units as they became available for service. Sir Ernest Cunard resigned from the Board on account of ill health, and for the first time in the history of the company there was no representative of the founder's family in its management. But the broad principles laid down by old Samuel Cunard were still being followed, however, with eminent success.

The importance of saving hours on the passenger time from New York led to a certain amount of experimenting with regard to the Channel calls. The Compagnie Générale Transatlantique in March, 1922, determined to make Plymouth a port of call for their New York service after an interval of fifty years and the experiment proved a complete success. Later, the example was followed by the Cunard *Mauretania,* which found that at certain seasons the distance to Plymouth at her speed permitted a very convenient disembarkation.

This was only one of the minor improvements introduced into the Compagnie Générale Transatlantique fleet; there were many others of greater importance. For their various plans on the North Atlantic and elsewhere it became necessary to raise their capital, and accordingly it was increased from eighty-one million to one hundred thirty-five million francs, the company acquiring large interests in the Cyprien Fabre, Fraissinet, Transatlantique Belge, and Navigation Mixte concerns.

Nineteen twenty-three saw some noteworthy ships built for the service. The manner in which the twenty-seven thousand-ton ship which was to have been the *Belgenland* of the Red Star Line was commissioned as a trooper under the name of *Belgic,* managed by the White Star, has already been told, and at the first opportunity after the war she was taken in hand to be completed according to the original ideas of her owners. This was done by the end of 1923 and under the name of *Belgenland* she was put on the Red Star service between Antwerp and New York, but she flew the British flag instead of the Belgian.

Not only was she a remarkably good-looking ship, with her three funnels and two masts, but her gross tonnage of 27,131 made her a noteworthy vessel even on the Atlantic, her speed of 17 knots was quite enough for many travelers and the combination machinery, triple-expansion engines exhausting into a turbine on the center shaft, was both economical and efficient. She had large passenger accommodation as well as a dead-weight capacity of over seventeen thousand.

The trouble was that circumstances forced her owners to put her on service without a sister, always a disastrous thing from the financial point of view on the North Atlantic, for when the trade was there, the level of building prices was so high that it was impossible to build at a profit; and when the slump came, the whole International Mercantile Marine group had determined on a very careful conservative policy. She has proved herself exceedingly popular both on regular service and on yachting cruises, but she still suffers badly from having no consorts and many suggestions have been put forward to rectify matters.

In 1913 the Atlantic Transport Line took definite steps to replace the fine fleet of thirteen thousand-tonners which had been lost during the War. Unfortunately, although the price of shipbuilding was still very high, the prospects were not good, so that instead of building the fleet that was originally planned they contented themselves with two ships, the *Minnetonka* and *Minnewaska*. In general principles they were not at all unlike the ships of twenty thousand odd tons which had been built by the Cunard and the Hamburg American lines, although they ran rather larger and their passenger accommodation was confined to three hundred seventy in the first class. Their gross tonnage was in the neighborhood of 21,800 and with single-reduction geared turbines supplied by water tube boilers they had a sea speed of 16½ knots. But they were colossal cargo carriers, having ten holds with a capacity of over one million cubic feet, and in order not to delay them at the terminal ports they were fitted with thirty-six winches.

It is an interesting commentary on the trend of liner design to compare the dimensions of the new *Minnewaska* with her namesake of pre-war design. The gross tonnage of the two ships is 21,716 and 14,317 respectively, the speeds 17 knots and 16, but the dimensions of the old ship were 600.3 by 65.4 by 39.6 depth of hold and of the new 600.8 by 80.4 by 49.4.

In appearance, although they were unmistakably from Harland and Wolff, they were quite distinctive. A single very large funnel and two masts were given an excellent rake, but the straight Samson posts rather spoiled the effect, while the absence of second-class accommodation made them tail off rather badly aft.

The White Star Line had been cautious in replacing their war losses, preferring to wait until the market had come down to a more reasonable level. The acquisition of the *Majestic* and *Homeric* permitted them to maintain their main service at full strength, and they turned their attention to building cabin ships when the opportunity arose. The first that they built was the *Doric* of 1923, a twin-screw ship of 16,484 tons with a speed of 16 knots. She proved very successful and was improved four years later in the *Laurentic,* an adaptation of her design with a gross tonnage of 18,724 and a speed of 17 knots. Before the War, the White Star Line had shown itself enthusiastic over Harland and Wolff's combination machinery, a triple-screw installation with reciprocating engines on the outside and a low-pressure turbine on the center shaft. In the *Doric* they departed from this and installed single-reduction geared turbines, but they returned to it in the case of the *Laurentic* which was the last ship to be engined on this principle. By the time she came out, the Bauer-Wach system had obtained all the advantages very much more simply.

Another useful and particularly handsome liner of the intermediate type was the *Athenia,* which the Fairfield Yard built for the Anchor Donaldson Line, a Cunard Canadian connection which had come into being during the War. She was a twin-screw cruiser-stern ship of 13,465 tons, with a sea speed of 15 knots, with double-reduction turbines of 8,700 standard horse power, and was designed for the cabin and third classes between the Clyde, Belfast and the Saint Lawrence. She was later followed by the *Letitia.*

The American Line had been running a service between Hamburg and New York since 1920, maintaining it with the *Manchuria* and *Mongolia,* which came from the Pacific Mail, the *Minnekahda* which was built for the Atlantic Transport British flag service but which was transferred to the Stars and Stripes by special permission of the British Government, and the *Finland* and *Kroonland* from the old Red Star service.

In 1923 the White Star started a new service from Bremen to New York, using the *Pittsburgh* and *Canopic,* but by that time the Germans were beginning to get enough tonnage of their own and were making it rather hard for the foreign flag companies. This, combined with the tightening of the United States immigration regulations, made it very difficult to make both ends meet, and before the end of the year it was decided to amalgamate the two services, moving the White Star terminal from Bremen to Hamburg, and transferring the *Finland, Kroonland* and *Manchuria* to the Panama Pacific Line, which was a new venture of the International Mercantile Marine to run an intercoastal service between New York and California.

To the effects of the United States Immigration restriction legislation had to be added the efforts of the Italian Government to keep their passengers in their own ships, with the result that the White Star decided that the Mediterranean service that had once meant so much was not really worth while, and the *Arabic* (ex-*Berlin*) was withdrawn from that run to the Hamburg route, replacing the

*Canopic,* which joined the *Haverford* on the secondary service from Liverpool.

While the historic Blue Eagle flag of the American Line was thus being upheld on the North Atlantic, and incidentally on the Panama-Pacific route as well, the fate of the four famous ships which had made its name was sad. The beautiful old *New York* and *Philadelphia* were sold to emigrant services to the Mediterranean after an unsuccessful attempt to run the former to Poland. The latter made one voyage, which included everything usually associated with a thrilling film — attempts to scuttle the ship, mutinies, officers armed and the like — and was finally sold at Naples to shipbreakers in Genoa. The *New York* got as far east as Constantinople, where in 1922 she was seized for debt and in the following year sold to Genoese scrappers, taking with her a last cargo of old iron from Constantinople to Italy. In 1923 the big Dutch ocean-going tug *Jacob Van Heemskerk* was sent to New York for the *St. Paul,* which finally arrived at the old naval dockyard at Wilhelmshaven in October and was broken up there. The *St. Louis* was treated in a similar manner, though she was scrapped at Genoa, and in her case it was the *Zwarte Zee* which did the towing. She had been abandoned to the underwriters after a disastrous fire and an effort had been made to convert her into an exhibition ship to take American goods all over the world.

On the United States Lines service, the ships which had formerly borne the nicknames of the various American States were renamed after the Presidents. They made a far greater appeal in Europe and it was far more dignified for fine ships, for the average European could only see the humorous side of a name like the *Blue Hen State* and knew nothing of its traditions or the affection that it inspired. At about the same time, the Royal Mail Steam Packet Company, finding the competition hitting its Atlantic service hard, converted it into a cabin schedule and introduced Halifax as a port of call.

In 1924 some of the *President* liners were withdrawn, on being sold to the Dollar Line for transpacific work and a new service round the world. The smaller ones were replaced on the London run by what was known as the American Merchant Line, maintained with Shipping Board tonnage by Messrs. J. H. Winchester and

Company, the descendants of the firm which owned the mysterious *Marie Celeste.*

For this purpose the Shipping Board took over from the American army five transports which had been built at the Shipping Board's yard at Hog Island, Philadelphia, ships which were renamed *American Merchant, American Banker, American Farmer, American Shipper* and *American Trader,* the service being known as the American Merchant Line. They were not big ships for Atlantic passenger work, vessels built in 1920 and 1921, with a gross tonnage of 7,430 and a dead-weight capacity of over 8,000. Nominally, their speed was fifteen knots with double-reduction geared turbines supplied by water-tube boilers, but actually they could work up to a far higher speed and they have always proved themselves excellent steamers. Originally they carried only twelve passengers apiece, being intended principally for the fast cargo service, with Runcimans as their agents in London, but even so they cost between $350,000 and $400,000 each to convert, and they made themselves sufficiently popular to justify their passenger accommodation being very greatly increased at a later date.

The various measures which America had taken to restrict immigration had been only partially successful, largely because they were based on a census which included a large number of non-permanent settlers. When the law came up for revival in 1924, intended to last for three years, the basis was changed and the quota allowed for most countries reduced. Two per cent. of the number of persons born in each country who were residents in the United States when the census was taken in 1890 was the allowance. This was far more favorable to settlers from the Northern European countries, who became American citizens for good at the expense of the transient Latins.

Of course America came in for a good deal of criticism, from all the lines so hard hit by the slump, particularly when birthplace was regarded as the only standard of nationality. The question was asked whether kittens born in an oven would automatically become biscuits. At the same time the administration of the law was greatly improved and it became more and more difficult for emigrants who were outside the quota to slip across the Canadian border, although it was still done and continues to be done to this day.

It was to overcome this great reduction in its third-class business that the tourist third class was introduced as a new feature of Atlantic travel. The idea originated in Mr. L. S. Tobin, the passenger manager of the International Mercantile Marine at Montreal, who was impressed by the possibilities of a trip to Europe being extended to any number of students, school teachers and the like, beyond whose means it had hitherto been. It started with the *Regina* taking 537 passengers of the new class in June, 1924, and in its early days the name "College Tour" was applied to the idea.

It did not take the other companies long to realize that here was an excellent opportunity of filling up the vacant third-class accommodation, and a large proportion of the steerage accommodation of most Atlantic liners was converted to the new class, together with part of the old second-class accommodation, whose popularity had been rapidly waning with the growing support of the cabin class. Of all the companies, the Atlantic Transport Line went farthest, and converted the war-built *Minnekahda* into a third-class tourist ship entirely, carrying seven hundred fifty only against the two thousand emigrants for which she was designed. They were accommodated in two or four-berth cabins, the fare between London and New York being twenty pounds single or thirty-eight pounds return. The popularity of the move was shown by the fact that she carried 6,228 tourists during her first season. She was later joined by the old Red Star *Zeeland* under the name of *Minnesota*.

The great event of 1925 was the introduction of an entirely new form of propulsive machinery on to the North Atlantic passenger trade. The Diesel engine had made wonderful progress during and immediately after the war but its advocates were very anxious to get at least a footing on the North Atlantic. The reception of their arguments by the established companies was, however, not encouraging and indeed it is generally admitted, even by the most enthusiastic, that the Western Ocean offers the least promising field for the internal combustion engine. It was a comparatively small company, the Swedish American Line, which took the plunge by obtaining the first Atlantic motor ship from Armstrong Witworth and Company in 1924. The *Gripsholm* is a ship of 17,716 tons with a speed of 17 knots, her Diesels totaling 16,300 horse power but only using 76 tons of fuel per day to maintain full speed. With good passenger accommodation and reasonable cargo capacity she proved most successful, for although she was nearly six thousand tons bigger than the *Stockholm* the running expenses of her double voyage across the Atlantic were nearly forty thousand *kroner* less. On the other hand, of course, the overhead charges were considerably higher on the very much higher original cost. She was followed four years later by the German-built *Kungsholm,* in which the gross tonnage was increased to about 19,000 and the speed to 17½ knots.

In Germany the Hamburg American Line was proceeding steadily with the construction of twenty thousand-ton ships, comparable to the post-war ships of the Cunard Line. The first two were the *Albert Ballin* and *Deutschland,* with a gross tonnage of 20,815 and 20,617 respectively, having a speed of 16 knots with single-reduction geared turbines and accommodation for a large number of passengers. They were certainly not handsome, straight forward and aft with four straight masts and two funnels, but they were useful ships on the service so long as the traveling public favored modest size and speed with comfort.

They were improved in the *Hamburg* and *New York,* ships with a gross tonnage of 21,300 and a slightly higher speed, the four masts being exchanged for two but the same straight lines being retained. The *Hamburg* was launched in 1925 and the *New York* in the following year, the latter ship being sponsored by the Mayoress of New York, who traveled to Germany especially for the purpose and who gave the Hamburg American directors an opportunity of showing their thoroughness and their appreciation of the American psychology.

In conversation with the heads of the firm she mentioned the courteous attention that she had received at the hands of her steward. Immediate inquiries showed that he was in New York at the time but a cable was immediately sent out, he traveled as passenger in the first and fastest ship available, and when she stepped on board to return to New York, he was there to greet her, although only by a matter of hours.

With their Atlantic fleet thus increasing, the Hamburg American Company inaugurated the post-war Boston call, with the *Thuringia* on her way to New York, but the experiment was not a great success and after a two years' trial it was abandoned.

Against these efforts of the Hamburg American Line the North German Lloyd responded by putting the new *Berlin* on service, a ship with a moderate tonnage of 15,286 and a speed of 16½ knots, but one in which every ton of her register was usefully employed in giving a remarkable standard of comfort. The installation of two sets of four-cylinder triple-expansion engines was one of the curiosities of her design, for such machinery was generally regarded as being quite finished on the Western Ocean.

The *Conte Verde* and the *Conte Rosso* having proved such unqualified successes, the Lloyd Sabaudo went to the same builders, Beardmores, for the third ship of the type which was an infinitely better vessel. She was built in 1925, having a gross tonnage of 24,416 against under 18,000 in the case of the earlier ships, and a speed of 21 knots on service against their 20½ on trial. She was just as successful as they were, but strong national feeling was beginning to grow up in Italy against these orders coming to British yards and when, two years later, they wanted to build the fourth of the class, pressure was brought to bear upon the company to give the order to an Italian establishment.

This last ship was the *Conte Grande* of 1927, once again a great advance in design. Her speed was 21 knots, the same as previously, but her gross tonnage was up to 25,661 and in her general arrangement opportunity was taken to work in a certain number of improvements on the original design. The company is being forced more and more to rely almost entirely on the tourist trade and whereas the early 18,000-ton ships had accommodation for 1,880 steerage passengers the *Conte Grande* only reckoned on 720.

Shipbuilding prices having dropped considerably, the Anchor Line recommenced the program which it had started immediately after the War. The last two ships, *Transylvania* and *Caledonia,* whose construction had been held up, were launched, and although they were laid down practically as sisters to the earlier ships of the *Tuscania* type they emerged with quite a different appearance. Like the Cunard Line, the Anchor directors discovered that even with the most sophisticated passengers on the North Atlantic there was still a certain amount of feeling against one-funneled ships. Experiments to decide the best place to put a dummy second funnel showed that it could not be done without absolutely spoiling their appearance, and the Anchor Line is a company which always takes great pride in its ships. They were therefore given two dummy funnels, one on either side of the real one, and they emerged among the most handsome liners on the Atlantic. Occasionally, during the slack Atlantic season, these ships have been sent to take a trip or two on the company's Eastern service, where they have proved eminently successful.

The Furness, Withy Line replaced the pre-war steamers on its service between Liverpool, Halifax and Boston in 1925 and 1926 by two sisters which, although small as compared with most modern Atlantic liners, were remarkably fine little vessels. The *Newfoundland* and *Nova Scotia* were ships of 6,800 tons with a speed of 14 knots, driven by quadruple-expansion engines supplied by oil-fired boilers and having reasonable accommodation for 180 passengers in addition to big cargo stowage.

The unemployment situation in Britain having become very serious indeed, and the quota system of the United States preventing any great migration in that direction, the authorities made efforts in 1925 to increase emigration to Canada, and the companies were asked to make a reduction in their fares to this end. It was a very difficult thing to do, with the ruling conditions of shipping, but they did a very good best in contriving a twenty per cent. reduction, only to be bitterly disappointed with the result both from the public and the Government which they had been at such pains to oblige.

Nineteen hundred and twenty-six was a wonderful year as far as the Atlantic was concerned, and certainly one of the most important in the decade. The Compagnie Générale Transatlantique brought out what was then the biggest ship on the Continent, the Italians put the largest motor-ship in the world on to the North Atlantic, the North German Lloyd made preparations to win back the coveted Blue Ribbon, the White Star Line passed from American ownership to British, and the Hamburg American came into its own again by buying up its American partners.

To take the French event first. The Compagnie Générale Transatlantique had found that its post-war luxury liner *Paris* was a great success and undoubtedly a good financial proposition, so that they followed her up in 1926 by the giant *Ile de France,* a 23-knot turbine ship with a gross tonnage of 43,548 and a dead-weight capacity of 11,500. To external appearance she was a repetition of the *Paris,* with three big funnels, but internally she was very different. To begin with, when she was designed the effect of the Dillingham Immigration Restriction Act was obvious and her owners did not waste space or money on the third-class passengers who could not be carried. Her third class was restricted to under five hundred, latterly mostly tourists, and it was her first-class accommodation that her designers really let themselves go.

M. Dal Piaz, who was then the head of the Compagnie Générale Transatlantique, was one of the best-known modern amateurs in French art and it was very largely due to him that she was given decorations which, while very modern, were so striking and luxurious that they immediately gave her a reputation. With the prewar *France* the two new ships were able to maintain a first-class service which satisfied the most critical.

When she took her maiden sailing in 1927 one of the most interesting features was the fitting of a mail aeroplane and launching catapult on deck, but that will be dealt with in its appropriate place.

Franco-Italian rivalry was keen, for both countries fully realized that the one who could persuade the American tourists to visit it first would have at least the better opportunity of drawing the most money out of them. The Navigazione Generale Italiana had found its two big ships *Giulio Cesare* and *Duilio* very successful, but it was not satisfied and brought out something very much bigger in 1926 and 1927. As regards their hulls the *Roma* and *Augustus* were practically sisters, the gross tonnage of the former being 32,583 and of the latter 32,650, while the dead-weight capacity of both was 10,500 and the nominal speed 19 to 20 knots.

But whereas the *Roma* was fitted with single-reduction geared turbines the *Augustus* was the subject of a very daring experiment, being given Diesels of no less than twenty-eight thousand horse power, driving four shafts. She was the biggest motorship in the world, still maintaining that title at the time of writing, and as is only to be expected, she has experienced her machinery troubles, although generally speaking she has been a successful as well as a noteworthy vessel. As an attraction, well advertised as she was, she certainly justified her construction.

She was built at the Ansaldo Yard at Sestri Ponente and had dimensions 710.9 by 82.8 by 46.5 feet depth of hold. She was given quadruple screws to keep the power of each Diesel within a reasonable limit, but even so each of her six-cylinder, double-acting, two-stroke engines, with dimensions 27⁹⁄₁₆ inches by 47¼ inches, worked up to 7,200 brake horse power at 127 revolutions per minute. At 120 revolutions, their normal speed, she consumed about 120 tons per day for all purposes. The engines were of the German M A N type, built in Italy under license by the Cantieri Officine Savoia.

During the war the Spanish Compañía Trasatlantica had earned big profits on the New York service, and although after the Armistice it returned more to its original runs to the West Indies, it kept its eye on the possibilities very carefully and in 1926 came out with a new service which was designed to attract American tourists to Spain instead of to France or Italy. The *Manuel Arnus* started this service, which proved quite reasonably successful.

For a long time past there had been rumors that the International Mercantile Marine intended to sell its British companies, particularly the White Star Line, which was by far the most saleable. In the spring of 1926 the shareholders held a general meeting at which they authorized this sale at a minimum price of seven million pounds, and it was announced that a syndicate headed by Messrs. Furness, Withy and Company was in negotiation and had every intention of buying the concern at that price. The negotiations, however, fell through, partly because of premature leakage of information, but principally because the General Strike in Britain made everything uncertain.

This was not the first attempt that had been made to negotiate the transfer of the White Star Line back to purely British ownership. Towards the end of the war, when shipping values were at their height, Lord Kylsant, the head of the Royal Mail Steam Packet Company group, offered no less than twenty-seven million pounds for all British flag ships, but at that time President Wilson banned the sale for reasons of state.

Within a few months of the Furness, Withy negotiations having been broken off, and with a minimum of preliminary rumor, it was suddenly announced that the Kylsant group had completed the purchase of the White Star Line, making it the largest shipowners in the world with well over two million tons of shipping. The International Mercantile Marine was still to act as the American agents of the White Star and by this means a very considerable saving was afforded as well as keeping alive a valuable friendship.

Even before the sale, the White Star had decided to build the first one thousand-foot liner in the world, the plans of which had been made by Harland and Wolff for nearly thirty years and changed periodically with engineering development. This ship, which was to be named *Oceanic* after the first White Star Liner on the North Atlantic, was laid down, but after very little work had been done it was suspended, very largely on the question of engines, and in 1929 the project was abandoned, for the time being at least.

Against this project the North German Lloyd, who had found their success in winning the Blue Ribbon in 1897 of such great importance to the finances of the company, planned to lay down two ships of between forty-five thousand and fifty thousand tons, which should be specially designed to win the Blue Ribbon back from the *Mauretania* who had held it for so many years. One of these ships was laid down at Bremen and the other at Hamburg, not directly subsidized but with a good deal of indirect help from the German Government, and building proceeded with the greatest possible secrecy.

In this year also the Hamburg America Line very greatly strengthened its position by buying out the United American partnership, together with the steamers *Resolute, Reliance* and *Cleveland*. The price paid was $1,582,500 in cash, $4,000,000 in seven per cent. mortgage notes and 10,000,000 marks at par of Hamburg American common stock. For the purpose of this purchase the Hapag had to increase its capital, a course which was also forced on the North German Lloyd by their plans for new construction.

Doctor Cuno carried through these negotiations and reappeared at the head of the Hamburg American Company. He had succeeded Albert Ballin as managing director but resigned in 1922 in order to become Chancellor of the Reich. He held that office for two years, at the end of which he reopened his connection with the Hamburg American, although he did not actually take an important post in the company until later.

As both the big German companies were forging ahead in this way, renewed efforts were made to try to persuade them to bury the hatchet and to work in unison, efforts which, like so many others that had preceded them, ended in failure.

On the American side, the Shipping Board were unlucky in having the old *America,* which fully retained her popularity in spite of advancing years, practically burnt out and there was a great question as to whether she was really worth repairing. Finally, however, this was decided upon and after a very expensive refit she returned to the Atlantic.

In the meantime the United States Shipping Board made one of its numerous efforts to get out of the shipowning business and offered the United States and the American Merchant Lines for sale. The Winchester and Kenny groups made tenders for the purchase, but the terms offered by the Board were not really attractive and their offers were turned down. This sale was to include the *Leviathan, George Washington, America, Republic* and *President Harding* on the United States service, with the *Agamemnon* and *Mount Vernon* in reserve, while the alternative was for the Shipping Board to build new passenger tonnage to replace the ships as they wore out, an alternative on which the American taxpayer was beginning to entertain strong feelings.

For the American Merchant Lines the Winchester, Kenny and Kermit Roosevelt groups made offers, but their price was not satisfactory and again the offers were rejected. Having the ships on their hands, the Board inaugurated a one-class tourist service between New York and London, increasing the accommodation of these ships from twelve to between sixty-five and seventy passengers, all of whom had outside cabins and whose fares ranged from twenty pounds to twenty-nine pounds. This additional passenger accommodation did not prevent the ships from being still principally interested in cargo, while they were also employed to carry the mails when their sailings fitted.

As a counter to this improvement in the American sailings to London, the Cunard Company improved its service from the Thames by transferring from Liverpool the *Caronia, Carmania, Lancastria* and *Tuscania,* a splendid fleet which soon became popular but which embarked most of its passengers at Southampton.

At that time the floating landing stage at Tilbury was not complete and the passenger facilities of the London River were admittedly poor.

At the same time the Hamburg service, which latterly had been run by the Cunard and White Star Line jointly, was finally withdrawn as being no longer worth while.

Mention has already been made of how the British Government, faced with the unemployment difficulty, persuaded the shipping companies to grant a twenty per cent. reduction in fares, and then rather disgusted them by the way it received their sacrifice. After that the companies naturally withdrew at least part of their support but special rates were granted to harvesters, most of whom came back to Britain at the end of the season.

As the unemployment situation became more serious, the two governments and the steamship companies coöperated in a new scheme which provided a fare of two pounds only to Halifax, Quebec or St. John, whence the settler was carried by special rates over the railways until Vancouver could be reached for eight pounds. The companies had to make considerable sacrifice to meet the authorities' ideas in this matter, but as far as the number of passengers was concerned, the scheme was a success.

Unfortunately the Canadian Government had the least reason to be pleased, for the privileges were abused by many people who got out to Canada for two pounds and then took the first opportunity of slipping over the United States border without going through the quota. Other forms of assisted passages to Canada were also tried, and for those who were going out to farm labor, preliminary training was provided in Britain.

Having received a very considerable sum in cash for the White Star Line, the International Mercantile Marine proposed a complete reorganization of its finances in order to make the most of its opportunities. The shareholders were agreeable but the courts refused their sanction, which checked the plans of the directors. In spite of this, however, they showed that they were keenly alive to new opportunities when they could be made, but their interests were now inter-coastal rather than transatlantic.

On the other side of the bargain, a new company named White Star Line Ltd. was floated in January, 1927, to finance the purchase, the name being a concession to popular taste, for the official tally "Oceanic Steam Navigation Company" had never really caught on and although it still existed, the popular White Star Line was very much more before the public.

The capital of this company was nine million pounds, of which two and a half million pounds six and a half per cent. preference shares guaranteed by the Royal Mail Steam Packet Company were issued at once and immediately over-subscribed. The principle of a guarantee in this way was the subject of a good deal of criticism later on. Four million pounds' worth of ordinary capital was subscribed at par by the Royal Mail Steam Packet Company and its associated concerns.

As part of the bargain, the White Star Line took over two of the steamers which had been on the Royal Mail Steam Packet Company's Atlantic service, a service which is now abandoned. The *Ohio* was a surrendered German and was renamed *Albertic,* while the *Orca,* originally belonging to the Pacific Steam Navigation Company, regained the *Calgaric.* These ships were put on to the Canadian service where their size was impressive, and the company prepared to lay down a big motor ship, in addition to proceeding somewhat half-heartedly with the one thousand-foot *Oceanic.*

To provide liquid assets for the purpose of meeting this competition, the Cunard Company was increased by £1,100,000 to a total of £8,100,020, to cover which the company had very ample assets on account of the conservative policy that it had always followed. The Hamburg American Line also increased its capital from one hundred and thirty million marks to one hundred and sixty million, being in a position to do so by resuming the payment of dividends for the first time since 1923 with a distribution of six per cent. This new capital was required principally for new construction, but most of it was non-Atlantic. The exception was two magnificent seventeen thousand-ton cabin motor ships for the New York run.

The question of the Galway scheme cropped up from time to time as usual, but it was a German company that saw the advertising value and the North German Lloyd attracted great attention in Ireland by occasional calls. In order not to offend any party in the keen competition between the ports, they also gave Bantry

Bay a trial, and although the other companies were not keen on doing this they all followed the Lloyd's lead with an occasional Galway sailing. The idea of making it a regular Atlantic terminal, however, was as far from fulfillment as ever, although it was constantly being revived.

In the New World the great interest was a suggestion made by the American Brown-Boveri Company to start a new express service which was provisionally called the Blue Ribbon Line and which was to run daily sailings between Montauk Point on Long Island and the Channel ports.

For this purpose it was proposed to build ten 20,000-ton ships at a cost of about $17,500,000 apiece, having dimensions 800 feet by 80 and propelled by high-pressure turbines at a speed of 32½ knots. It was reckoned to run a daily service with a four-day passage and a twenty-four-hour turn-round, the ships carrying eight hundred passengers each and being fitted with aeroplanes to fly ashore when the ship approached within a day or so of her destination.

Experienced naval architects pointed out the obvious technical difficulties of the scheme, but great as they were they were not to be compared with the financial ones. It was acknowledged that the idea could not go forward without a loan of seventy-five per cent. of the necessary money from the United States Government, and a subsidy of $9,000,000 per annum. The question was who should pay this subsidy, the United States Post-office for the mail services of the company or the United States Navy for the value of the ships as auxiliary aircraft carriers. Neither wished to shoulder the financial responsibility, with the result that the scheme fell through.

All this time many plans were being discussed for the reconstruction and modernization of the ex-German *Mount Vernon* and *Agamemnon,* the latter soon to be renamed *Monticello.* These former Germans were getting towards the end of their days in any circumstances, and their war services certainly did not tend to prolong their lives, but they were actually afloat and there were great difficulties in the path of any plan to build afresh in the United States. Therefore many plans were put forward for their re-engining while the ships remained laid up and deteriorating, but the financial side always provided the obstacle.

The Cosulich Line did not intend to be beaten by its rivals in Italy or anywhere else, and in 1927 and 1928 came out with two very remarkable motor ships. *Saturnia* and *Vulcania* were designed for use in the South American as well as the North American service and had a gross tonnage of 23,940. Their *Diesels* indicated eighteen thousand horse power and gave them a speed of nineteen knots, to attain which they consumed ninety tons of oil per day. Primarily passenger ships, they had a large cargo stowage but their single colossal funnel, probably the biggest ever sent to sea, did not make them pleasing to the eye, although it must be admitted that it gave them an impression of tremendous power.

These ships had to look to their saloon or third-class tourist traffic almost entirely, for the United States immigration restrictions were tightening steadily against the Italians. The wisdom of this policy of the American Government is shown by the fact that the Italian authorities were making a regular export of their labor, applicants for passports being very carefully examined and the treasured permits only issued to good wage-earners who would remit their earnings home to Italy.

Nineteen twenty-eight was essentially the year of the cabin class, and some remarkably fine vessels of that description were launched or put on service. The Canadian Pacific ships of the *Duchess* class — *Duchess of Atholl, Duchess of Bedford, Duchess of Richmond* and *Duchess of York* — were particularly noteworthy, for with their gross tonnage of rather more than twenty thousand and their speed of between eighteen and nineteen knots they were designed as cabin ships from the first, yet they contain practically all the refinements and luxuries of the crack liners. They were given single-reduction geared turbines and water-tube boilers and they proved themselves remarkably economical as well as fast and popular.

A number of old first-class liners continued to be converted to the cabin class, with particular attention paid to the third-class tourist, including the White Star "Big Four" — *Celtic, Cedric, Baltic* and *Adriatic* — and the Cunard *Carmania* and *Caronia*. The *America* returned to the United States Line's service after fire repairs and for the time being was the biggest cabin ship on the Western Ocean.

To the Hamburg American Line belongs the credit of introducing the cabin motorship on to the North Atlantic, the *Milwaukee* and *St. Louis* being built in 1928 and commissioned in the following year. Like the ships of the *Albert Ballin* type they were built more for utility than appearance, with their two masts and two stumpy funnels, but they were undoubtedly fine ships and started a new type which was likely to become general right through the Western Ocean fleets before very long. Their gross tonnage was in the neighborhood of 16,700, their speed 16 knots with four 6-cylinder 2-stroke double-acting Diesels of 12,600 horse power geared to quadruple shafts. Designed to carry 270 cabin passengers, 287 tourists and 416 third class, they also had a dead-weight capacity of 10,000.

The system of gearing the Diesel engines to the shaft after the fashion of the turbines was distinctly interesting. The Hamburg American Company had adopted it immediately after the war in some big cargo ships which they built for the Far Eastern trade, but in their case they had little alternative because they wanted to get the ships on service as soon as they possibly could and the quickest way was to buy some Diesel engines intended for German submarines which were for disposal. They ran far too fast for a cargo ship, so the experiment was tried of gearing them down and the installation was so efficient and economical that in the *Milwaukee* and her sister the company determined to work on it from the first.

Somewhat similar, but larger and carrying first-class passengers, was the German-built Swedish American liner *Kungsholm,* 20,223 tons, with two Burmeister and Wain double-acting Diesels totaling 15,000 brake horse power and giving a speed of over 17 knots.

Many doubts were expressed as to whether the cabin class would really find favor on the Western Ocean and for a time there certainly were various snobbish objections raised. When Prince George decided to make the Atlantic leg of his homeward voyage from the China Station in a cabin ship, however, all this feeling disappeared and the very great financial saving possible was fully appreciated.

At the same time it was obvious that with the remarkable comfort being offered for second-class fare, the first-class ships were very hard hit, particularly on the Canadian service where the *Duchess* made such a difference. Accordingly the Canadian Pacific went to John Brown of Clydebank for the very last word in Canadian tonnage, the *Empress of Britain,* of rather more than forty thousand tons gross register with a speed of twenty-five knots. She was not ready by the end of the decade, but the advent of such a ship on the Saint Lawrence route, although it was not altogether welcome to the underwriters, is obviously possessed of revolutionary possibilities.

While the Canadian Pacific was thus developing its fleet in such a rapid manner, Captain James Gillies, who had worked his way up to commodore and then general manager, was given a seat on the board of directors, a unique honor for a modern liner officer.

The White Star Line, having completely absorbed the old Dominion service and destroyed its identity, opened a new service between London and Canada, calling at Havre and Southampton, with the *Megantic,* while the Cunard also paid particular attention to their Canadian run.

There were two serious accidents during the year: one was a broken shaft on board the North German Lloyd *Columbus* which resulted in the wrecking of one of her quadruple-expansion engines. As she could not be taken off service at the time, a very much smaller triple-expansion engine from a tramp steamer was installed and she carried on at reduced speed while the owners completed their plans for reëngining her with geared turbines to fit her to run alongside the *Bremen* and *Europa* when they came out. And right at the end of the year, within a few months of being paid off in the ordinary way, the famous old White Star Liner *Celtic* was wrecked entering Queenstown Harbor and all efforts at salvage were unsuccessful. More peacefully, *La Savoie* of the Compagnie Générale Transatlantique went to the scrappers in Holland.

The launch of the North German Lloyd steamers *Bremen* and *Europa* on successive days naturally aroused great interest in the Blue Ribbon, but the veteran *Mauretania* showed that she was not finished yet by repeatedly lowering her own records.

Among the developments of the year, although opinion among practical shipping men was not by any means unanimous as to its advantages, was the experiment made in the Compagnie Générale Transatlantique liner *Ile de France* with a mail-carrying aeroplane which was launched shortly before she arrived at the end of her journey and carried express mail ahead of the ship. For the purpose a hangar was fitted on the port quarter and a pneumatic launching catapult, experiments showing that by this means it was possible to land special mails nearly thirty-six hours ahead of the ship.

But against it is the fact that it is very expensive to keep an aeroplane and its trained personnel simply for the sake of a few hours' flying at the end of each voyage, while only very special mail would be expressed in this way, and an accident to the *Ile de France's* plane proved that there was a considerable risk.

The decade, and the century under review, finished up in wonderful style with one of the most interesting years in the whole history of the North Atlantic. The idea that a post-war traveler would not patronize a luxury ship was dead for ever, and with the North German Lloyd *Bremen* and *Europa* completing for service — the actual completion of the latter was greatly delayed by a disastrous fire while she was fitting out — the other flags decided that they would at least try to obtain the distinction of the record.

In America this attempt was made possible by the sale of the United States and American Merchant Lines to a group headed by Messrs. P. W. Chapman and Company for $16,300,000, the terms being 25 per cent. in cash and 5 per cent. each year for 15 years with an interest on the balance of 4½ per cent. It was stipulated that the company should operate the routes for at least ten years and that it should build two fast ships of at least forty-five thousand tons to run alongside the *Leviathan* on the Southampton route, and two eighteen-knot ships to reinforce the American Merchant Liners on the London service. The company itself added two big cabin ships of approximately thirty thousand tons and decided to make the big ships record breakers.

Then the Italians, with the very active encouragement of their Government, entered the game, and for the purpose the Navigazione Generale Italiana and the Lloyd Sabaudo coöperated, although each built its own ship. That of the former company was named the *Rex* and that of the Lloyd Sabaudo the *Conte di Savoia.* Although keeping the individual identity of the companies, it is intended that when they are ready these two ships shall run together and the addition of two forty-five thousand-ton steamers with a speed of 27 knots each will undoubtedly assist Italy greatly in her struggle with France for the tourist traffic. At the same time the new ship being laid down by the Compagnie Générale Transatlantique, although no details are yet published, is expected to be of the record-breaking type.

The idea of the motor cabin ship, already mentioned for the Hamburg American Line, was taken further in 1929 by the launch of two particularly noteworthy vessels, the *Britannic* for the White Star Line and the *Lafayette* for the Compagnie Générale Transatlantique. The former was of Harland and Wolff's usual type, twin-screw with two stocky funnels; the latter was quite unique, a quadruple-screw ship with a single mast and a single funnel with tapering sides bigger even than that of the *Vulcania.* The gross tonnage of the *Britannic* is about 27,000 and she is designed for 16 knots, while the Frenchman is an 18-knotter of 25,032 tons. Neither ship, however, went into service until 1930, by which time the White Star had a sister to the *Britannic* under construction at the same yard.

On the steam side, the great interest was the delayed commissioning of the Holland American *Statendam.* She had the disadvantage of being a single ship on a service, but she was a remarkably comfortable vessel with her gross tonnage of 29,511 and her speed of 19 knots, and when so much attention was being devoted to Diesel engines she is noteworthy as being the most economical steamer afloat. The North German Lloyd's *Columbus* and the four Hapags of the *Albert Ballin* type were made much faster with new turbines.

But all the year's keen interest was centered on the attempt of the North German Lloyd to lower the Cunard's record. Would all the curious innovations which the company's designers had introduced into these ships prove successful, and could the wonderful old *Mauretania,* which had held the record for the unprecedented period of twenty-two years, contrive to beat her, despite all modern machinery improvements? It was a serious question for the Lloyd people; if they failed, it would be a disaster, when so much capital had been laid out; if they succeeded, most of their post-war difficulties would be swept away.

When building the *Kaiser Wilhelm der Grosse* for record-breaking purposes in 1897, the Germans had created a very fine ship, but she was not revolutionary in any way; just a careful development of the types that had preceded her for years. In the *Bremen* and *Europa,* on the other hand, the designers, after careful tank experiments, introduced revolutionary innovations on practically every point. The value of the Press as an aid to shipping was realized much more fully than it was in 1897 and the launch of the two ships on successive days supplied columns of newspaper matter all over the world. Everything was done to create and improve the impression. The *Bremen* was built at Bremen and the *Europa* at Hamburg; they were launched on successive days; and enough of their novel features were disclosed to draw a great stir, where appetites for details had already been whetted by the careful mystery.

Precedent found no place in the outward design of the two ships, which was scarcely a handicap and which gave a wonderful impression of power. The stem was cut away after the fashion that has become almost universal with fast cargo ships, while the stern was a modified cruiser. Below the water line the stem, instead of being made as fine as possible as in previous fast ships, came out in a big bulb not unlike the ram of an old-time French man-of-war. This novel shape was decided upon after very careful experiments on stream-line principles, and revolutionary as it appeared to be, it had to be admitted as a complete success. Not only did it give the ships a very easy entrance but it supplied buoyancy forward which prevented them plunging in a heavy sea and lifting their propellers. Traveling aft along with the under-water body, the lines were particularly sweet, and one could not help noticing that the usual long parallel section was practically non-existent.

Another curious feature about their hulls, which would appear to the layman to be the worst thing for speed but which also proved successful, was that the plates overlapped forward instead of aft, so that the water running along the ships' sides encountered a series of blunt butts. A fraction of a knot in speed was gained by this scheme, while the stream-lined rudder also worked to the same end.

The dimensions were 898.7 feet long by 109.9 beam, which worked out at roughly 8.9 beams to the length against the 8.6 of the *Mauretania* and the 10.2 of the pioneer White Star ships which caused such a sensation by their length.

The stream-line principles of the hull were carried into the upper works, for everything was shaped with the idea of reducing resistance. In the *Bremen* even the funnels were given a streamlined shape, but this scheme was abandoned in the case of the *Europa.* The reason for their abandonment was apparently that the gain was very small against the disadvantage of smothering the after boat and promenade decks with fumes. In both ships, however, the funnels were short and squat, more like those of a modern motor liner than a steamer.

The four screws were driven by single-reduction geared turbines developing 130,000 horse power, the engines running at eighteen hundred revolutions per minute and the propellers at one hundred and eighty. The geared turbines were arranged in two entirely separate boiler rooms, those of the inner shaft being in the after room, and here, as in every other section of the ships, the greatest efforts to secure safety were made by bulkheading. These engines were supplied by nine single-ended and eleven double-ended water-tube navy pattern boilers, conspicuous by their large steam-raising capacity and small bulk and weight. They were designed to work at a pressure of two hundred and fifty pounds to the inch, the steam being superheated to a temperature of six hundred and eighty degrees Fahrenheit. This high pressure and efficient gearing gave the *Bremen* a very good advantage over the twenty-two-year-old *Mauretania,* but the Cunard veteran proved herself capable of giving her a very good run for her money.

Roughly, the passenger accommodation was six hundred in the first class, five hundred in the second, three hundred in the tourist third, and anything up to eleven hundred in the third class, although permanent fittings were not put up for nearly as many. The public rooms were of a most luxurious description, and they were intended for show ships from the first.

One particularly interesting feature that may be mentioned is the life-saving equipment. Instead of the usual lifeboats of the Board of Trade or similar pattern, the *Bremen's* all carried motors and were capable of accommodating one hundred and forty-five people apiece. Naturally special davit arrangements had to be made for them, but they were pronounced as very efficient, backed as they were by a number of rubber rafts similar to the naval Carley floats.

As soon as the *Bremen* came out, there was naturally great excitement as to whether she could beat the *Mauretania*. On the face of things it appeared certain, for the Cunarder was twenty-two years old and was not designed to be as fast a ship as the *Bremen*. But she was not going to take second place without a struggle and her failure in 1929 was perhaps as glorious as her triumph in 1907.

The question was soon settled, for the *Mauretania* was taking a parallel passage when the *Bremen* took her first trip. But there was no doubt that youth was served; the *Bremen* did the passage from Cherbourg to New York in four days seventeen hours forty-two minutes, while the *Mauretania's* best was five days two hours and thirty-four minutes, a very fine performance considering her age and the fact that machinery had improved so vastly since she was built. Homeward, the *Bremen* did the run from New York to Plymouth in 4 days 14 hours 30 minutes, averaging 27.9 knots from the Ambrose to the Eddystone, while the *Mauretania's* best was 4 days 21 hours 57 minutes.

The veteran had put up a magnificent fight which won her every bit as much interest as the new ship got from her splendid performance, and the hundred years of Atlantic travel may be said to have ended in the most strenuous race, and it must be admitted the fairest, that has ever been fought out on its waters.

## *Epilogue*

At the time of writing the future of Atlantic travel is a matter of infinite conjecture. The *Bremen* has the Blue Ribbon, while her newer sister the *Europa* is practically equal to her performance and slightly better on elapsed time, but the Cunard is not beaten yet and is inquiring for the construction of a new record breaker. The United States, France and Italy are in the race, while the Hamburg

American Line, although it has patched up a fifty-year truce with its old rival, the North German Lloyd, is something of a dark horse and is expected to build some remarkable vessels, probably going in for size rather than speed, in the near future. But it is difficult to believe that the next hundred years of Atlantic travel can possibly contain half the interest and excitement of the century which has just finished.

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